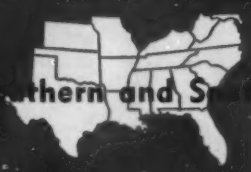
ELECTRICAL SOUTH



Serving the 18 Southern and Southwestern States

A special section on "Lighting Trends in the South"—page 36

OCTOBER, 1954

COMPARE...

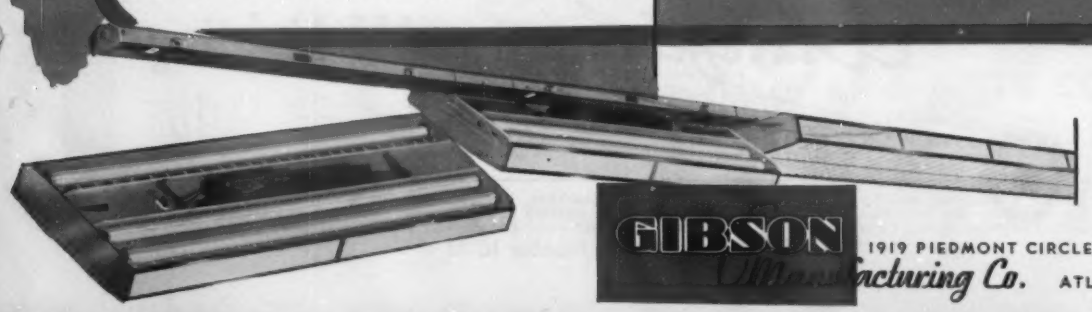
ortho-77

Reg. U. S. Pat. Off. Applied For

TRADE MARK . . . PATENT APPLIED FOR

with any conventional fixture

	Ortho-77	Conventional
OVERALL COST	Reports show savings up to 50% in installation costs with the Ortho-77, which means that you can buy the Ortho-77 *installed* for the same price as ordinary fluorescent fixtures.	Installation costs of ordinary fluorescent fixtures average nearly *twice* that of comparable Ortho-77 installations. Although initial costs are in some instances lower, the overall installed cost of the Ortho-77 is favorable.
INSTALLATION	Uni-race sections can precede fixtures to the job. Easily and quickly mounted, they assure positive, permanent straight alignment automatically. Fixtures may be shipped when the building is ready for occupancy and can be hung without tools in minimum time.	In conventional installations, heavy fixtures often must be handled many times on the job. Permanent alignment is frequently difficult to maintain without accessories. Because of the tools and handling necessary, it is difficult to keep fixtures clean in mounting.
FLEXIBILITY	Fixtures of same wattages are interchangeable on the same Uni-Race. Lighting levels can be raised from two to four lite in a matter of minutes, or fixtures can be mounted at spaced intervals and made continuous anytime later without tools in a minimum of time.	Conventional fixtures offer virtually no flexibility in so far as fixture interchange or change of lighting layout is concerned.
MAINTENANCE	Ballast replacement can be made in a matter of minutes by changing fixtures instead of parts. Repairs can be made in the shop at will and service on the line will not be interrupted *even while changing fixtures.*	With conventional fixtures, it is necessary to suspend service on the entire circuit to make repairs. Frequently the working area is disrupted for several hours while this is being accomplished.



WRITE TODAY for descriptive folder giving details of the Ortho-77

GIBSON Manufacturing Co.

1919 PIEDMONT CIRCLE, N. E.

ATLANTA, GEORGIA

This Electrical Contractor Practices What He Preaches

President's Office, Hydon-Brand Company, Detroit. Wakefield Theta-Plex modular ceiling with Rigid-Arch plastic diffusers and acoustical baffles. Factory-wired channels with ballasts and lamp sockets are mounted on the structural ceiling (painted white) above the plastic diffusers. Fluorescent lamps go in perpendicular to the channel. If desired, conditioned air may be diffused into the room from the plenum through the multitudes of tiny openings in the baffles. If desired sprinkler heads may be installed at the intersections of baffles.

Installs "Electric Ceilings" In His New Building So He Can Prove Their Value To His Prospects

Hydon-Brand Company, Electrical Contractors and Engineers of Detroit, Celebrate Diamond Jubilee of Light by Using and Selling Wakefield Multi-Function "Electric Ceilings", thus Getting Larger Share of the Building Dollar.

Take for instance the Wakefield Theta-Plex installation in the president's office, as shown in the photograph. Here we see an "electrical ceiling" providing three basic elements—high level illumination, acoustical baffles and air diffusion.

Other areas of this modern new building are equipped with Wakefield Beta-Plex units. In every instance this wide-awake contractor is out to demonstrate to his prospects that such highly functional ceilings will do *more* for *less* money in the over-all picture than conventional hanging fixtures. He aims to cut himself a bigger piece of the building pie.

There is no time like Jubilee Year time to set up to do this kind of large scale, profitable business. If you aren't already geared up to sell Wakefield integrated multi-functional ceilings you are missing the biggest opportunity for getting a larger share of the building dollar the electrical contractor has ever had.

For complete information and descriptive literature, write The F. W. Wakefield Brass Company, Vermilion, Ohio. In Canada: Wakefield Lighting Limited, London, Ontario.

Wakefield Over-ALL Lighting

WAKEFIELD GEOMETRICS

THE CAVALIER

THE GRENADIER

THE PACEMAKER

THE COMMODORE

THE STAR

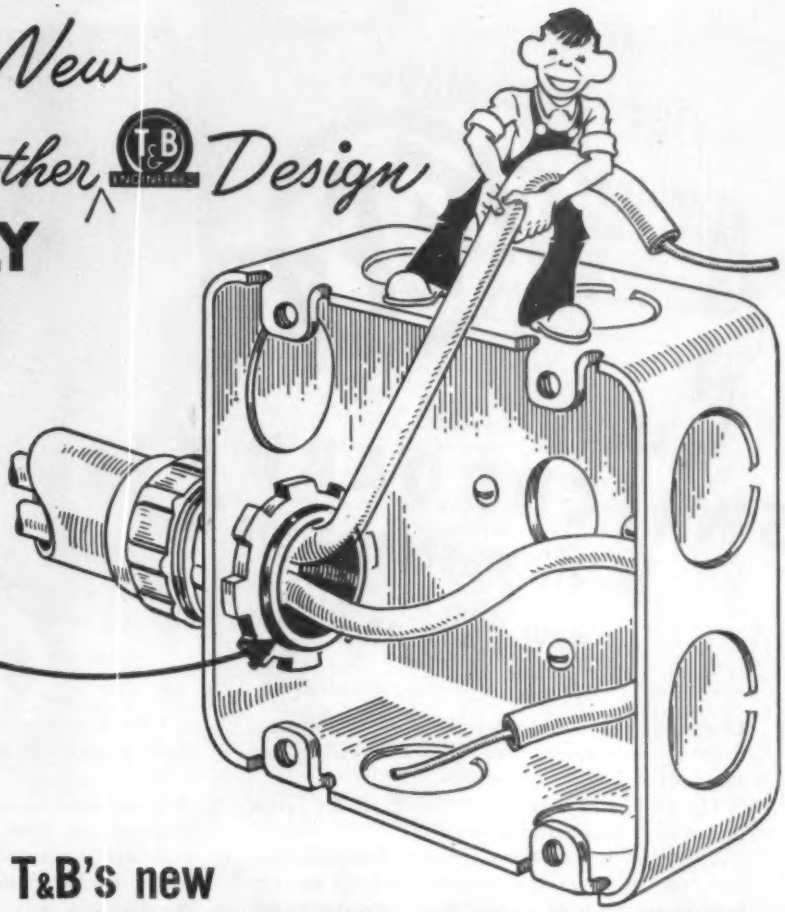
THE WAKEFIELD CEILING

ELECTRICAL SOUTH is published monthly at 214 West Morehead Street, Charlotte, North Carolina by W. R. C. Smith Publishing Company. Executive and Editorial Offices: 806 Peachtree Street, N. E., Atlanta 5, Georgia. Entered as second class matter at the Post Office, Charlotte, North Carolina. Subscription Rates: United States and Possessions, $1.00 per year; Canada and Foreign Countries, $10.00 per year.

Volume 34 Number 10

New Another T&B Design

ABSOLUTELY THE FIRST OF ITS KIND



T&B's new Insulated Throat E.M.T. Connector meets NEC requirements for protecting cable sheath or wire insulation against damage from burred or unevenly cut conduit. Sizes ½ to 2 inches.

T&B's new Insulated Throat Connector* for E. M. T.

(THINWALL)

A bright blue, factory-inserted insulating liner completely covers the area inside the connector throat and provides a rounded, burr-free passage for wiring. The liner is extremely tough with a smooth, resilient surface . . . unaffected by common acids, solvents, moisture, and fumes. A lip protrudes slightly beyond the connector body forming a tell-tale bright blue ring – similar to other T&B "blue" fittings – visual assurance for an inspector that the connection is insulated.

There's no other fitting comparable to T&B's new Insulated Throat E.M.T. Connector! No separate insulating bushing needed. Installs just like a conventional connector. Same wrench size fits both body and gland hexes.

And it's up to *50% longer* than conventional connectors! The extra-deep body provides a much greater area of firm, rigid support for the tubing. Conduit *has* to line up properly. Runs are straighter. Steel body, gland, ring and locknut are your assurance of uniform strength and dimensional accuracy. A free sample and descriptive literature will be sent to you with no obligation. Write to T&B today.

*Patent Applied For

LOOK FOR THIS SIGN – T&B AUTHORIZED DISTRIBUTOR ENGINEERED

IT'S THE MARK OF AN AUTHORIZED T & B DISTRIBUTOR

The complete line of T & B fittings for conductors and raceways is sold only by recognized electrical wholesalers. It's our way of assuring you the service and savings of a friendly local source. Call him for all your electrical needs. T-420

THE THOMAS & BETTS CO.

INCORPORATED

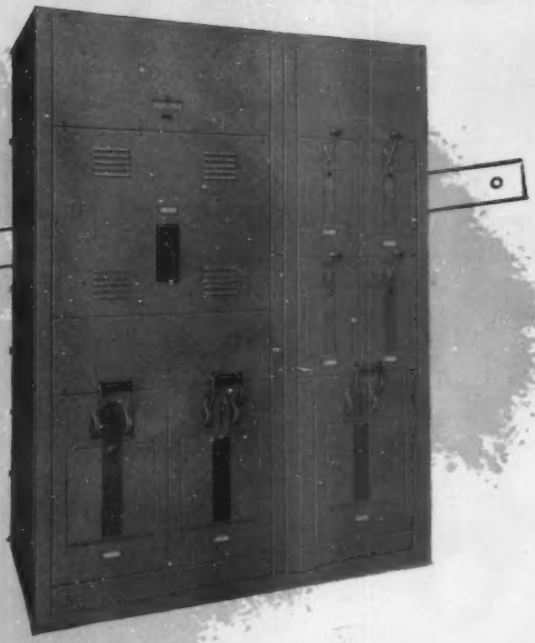
72 Butler Street • Elizabeth 1, New Jersey
Thomas & Betts Ltd., Montreal, P.Q., Canada

MANUFACTURERS OF FINE ELECTRICAL FITTINGS SINCE 1898

urge your customers to include a FA TRADE MARK standardized

SWITCHBOARD

in all modernization or new building plans



Efficiency, safety, dependability, long-lasting and trouble-free service are cardinal virtues of standardized FA switchboards.

The reason is that they embody all the latest features in design and operation.

Approved by the Underwriters' Laboratories, Inc., for label service, standardized FA switchboards are built of standardized pre-assembled units, incorporated in standardized enclosures.

All switchboards are factory assembled and shipped ready for connection to main and branch circuit cables. Sections are so designed that they can be used singly or grouped. Removable end walls permit the addition of sections on either side.

If you want to add to the efficiency, safety and economy of your customer's plant operation, urge him to include a standardized FA switchboard in his plans for new and modernized buildings.

For further information about these new power centers, contact your nearest FA representative listed in Sweet's architectural and engineering file.

THREE TYPES FROM WHICH TO CHOOSE

FA shutlbrak

a safety type switchboard designed for frequent and heavy use.

CAPACITIES:

30 to 1200 amps., 250 volts AC or DC and 600 volts AC 2, 3 and 4 poles. Rotary type operating handles furnished on 30-200 amp. capacities. Straight handles on all others.

FA klampswitchfuz and snufarc

a combination disconnect switch and fuse device.

CAPACITIES:

FA Klampswitchfuz, 30 to 600 amps., 250 volts AC or DC, 2, 3 and 4 poles, single or double throw.

FA Snufarc, 30 to 200 amps., 600 volts AC 2, 3 and 4 poles.

FA circuit breaker

a safety type switchboard with thermal-magnetic type circuit breakers.

CAPACITIES:

15 to 600 amps., 250 volts AC or DC and 600 volts AC, 2 and 3 poles. (Air circuit breakers are used for larger capacities.)

Frank Adam Electric Co.

BOX 357, MAIN P. O. • ST. LOUIS 3, MO.

makers of:
busduct • panelboards • switchboards
service equipment • safety switches
load centers • Quikheter

ELECTRICAL SOUTH

SERVING THE 18 SOUTHERN AND SOUTHWESTERN STATES

October, 1954 — Vol. 34—No. 10

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TO HELP THE BUSY READER—

Lighting comes into its own this month when the **Light's Diamond Jubilee Celebration** reaches its climax on October 24th, marking the invention of the first practical electric lamp.

ELECTRICAL SOUTH normally devotes considerable space to the subject of lighting. This month, however, almost the entire issue is turned over to the subject of lighting, with particular emphasis on sales promotion, and especially, how the contractor can co-operate advantageously with other branches of the industry in raising the standard of lighting installations.

The lighting art has reached a high state of perfection. Yet in spite of that fact, thousands of installations are far below recommended minimums in quality and quantity. With regard to level of illumination only, there are thousands of stores, office buildings, schools and industrial plants that need from 3 to 7 times as much lighting as they have. Many of those installations that are adequate in illumination level are poor in quality, utilizing bare lamp fixtures, etc.

Particular attention is directed to the article beginning on page 21, **"Certified lighting—a co-operative effort."** Here is a plan that can mean great things for the lighting industry—down the line from manufacturer to installer. It isn't an untried formula; it follows the pattern of the adequate wiring program. A few cases already on record show that it will work!

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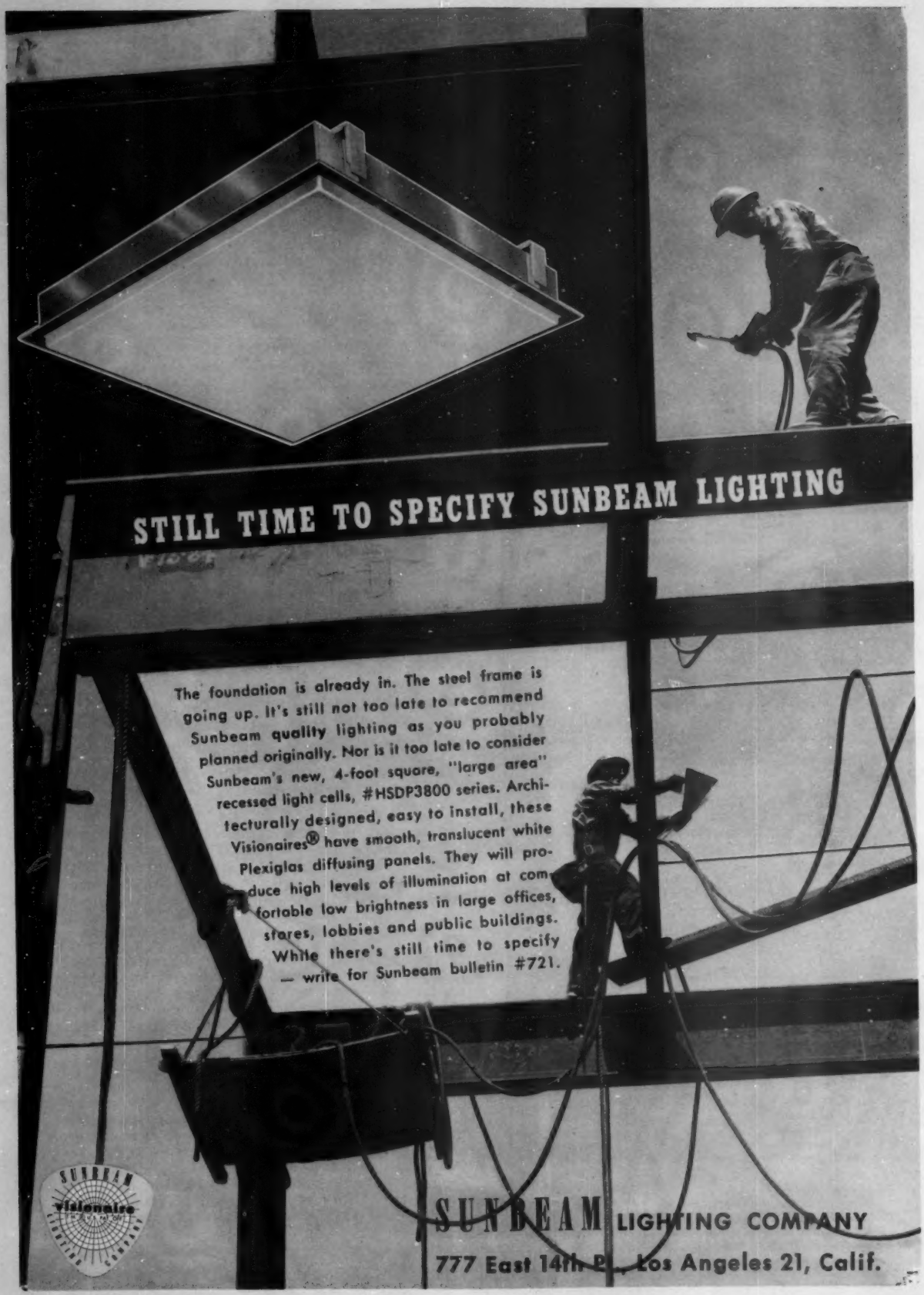

STILL TIME TO SPECIFY SUNBEAM LIGHTING
The foundation is already in. The steel frame is going up. It's still not too late to recommend Sunbeam quality lighting as you probably planned originally. Nor is it too late to consider Sunbeam's new, 4-foot square, "large area" recessed light cells, #HSDP3800 series. Architecturally designed, easy to install, these Visionaires® have smooth, translucent white Plexiglas diffusing panels. They will produce high levels of illumination at comfortable low brightness in large offices, stores, lobbies and public buildings. While there's still time to specify — write for Sunbeam bulletin #721.
SUNBEAM LIGHTING COMPANY
777 East 14th P[illegible], Los Angeles 21, Calif.

Economic comment

by J. Whitney Bunting, Ph.D.

Housing trends and the appliance market

The best tip-off on the nation's economic strength is found in current data dealing with home construction. There is little doubt but that the strength of this item has done much to minimize both recession talk and recession effect. More home building is taking place this year than in any year since 1950. And unlike that year, most of today's homes are being built for resale and not by the prospective owners.

The construction industry is filled with confidence, for they believe that consumer studies reflect a genuine desire to buy coupled with a heavy backlog of savings to make their optimism justified. A visit to the suburban section of any growing metropolitan area is the most convincing proof of this trend. In fact, home building has, in some regions, promoted a minor food crisis, with many former truck garden spots now growing a brand new crop of modern ranch style homes.

Packaged appliances

Most organized home builders have learned one lesson in recent years. Home buyers are looking not only for housing but the best deal to go with the home. The result is a wholesale demand by contractors for deluxe heating equipment, year-round air conditioning systems, stoves, refrigerators, dishwashers, laundromats and other appliances formerly purchased by the home owner. In the modern vein, many new homes have television receivers built into the study or den. Automatic gadgets of all types abound in new homes, with even built-in draperies of light metal or plastic included in the sale price.

There is little doubt but that prospective home buyers are accepting the new idea. Young couples in particular, who found great difficulty in both buying a home and decorating it, now appreciate the efficiency of an all in one price for a modern living package. And through this new technique original financing can include items of an appliance or decorating nature, thus allowing amortization over a long period of time.

One of the most serious of the problems arising from this trend is the plight of the small appliance dealer. Demand for household appliances and equipment is at an unusually high level at the present moment, but only a small part is filtering through the normal retail outlets. Contractors and builders, selling completely packaged livable homes, put their orders for such equipment through wholesale and factory channels, thus eliminating the middle-man.

There is nothing wrong with this procedure, of course, but it does lead many retail outlets to suspect, erroneously, that public demand for their wares is not holding up well. Manufacturers, on the other hand, are basking in the normal or above normal sales.

One further comment about the housing boom. Families are still forming at a rate well above normal, and each one demands adequate housing facilities. Apartments for most are only temporary expedients until family size or income calls for expansion into a home of their own. As this rate continues, or even expands, one can expect a continuing demand for adequate living quarters.

Continuity of demand

So contractors should have a healthy period of prosperity for the next five years at least. There may be scattered areas of limited excess construction, but these, for the most part, will be localized and of limited duration.

Like any other business manager, the contractor must continuously feel the pulse of economic conditions in his particular area. Certainly consultation with an established area economist or market research analyst would be very helpful.

As 1954 is nearing a close the question of continuing economic prosperity becomes more closely allied with national political considerations. This not only refers to the election in prospect but, even more specifically, to the President's budget message to Congress, scheduled for January. There has been continuing pressure to cut federal spending in order to live up to the Republican pledges in the 1952 campaign. Some progress has been made, but the feeling persists that government economy must give way to the economic welfare of the nation. It is safe to assume that no economy drive will gain much momentum in the last half of this present administration when re-election possibilities are critical.

All other phases of spending seem to be continuing at high level and appear destined to remain so. It is no secret that the effect of even the somewhat reduced government spending effort is a mighty stimulant to both business and consumer buying. Practically all phases of economic activity have suffered some declines during 1954, with the exception of consumer spending. All seem destined to have a fairly brisk upturn in the closing months of the year.

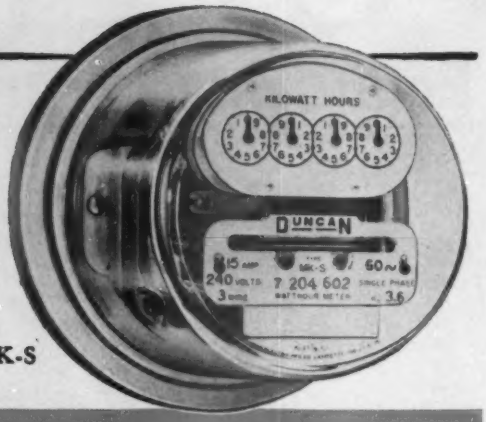
The presidential budget

What 1955 will bring forth will certainly be ascertained by a review of the presidential budget message. If it should, and this is highly doubtful, reflect a curtailment of government spending, there will be many who will offer the cry, "depression." This reaction will not be honest but will largely be predicated upon a fear of what might happen if a main economic support were to be withdrawn.

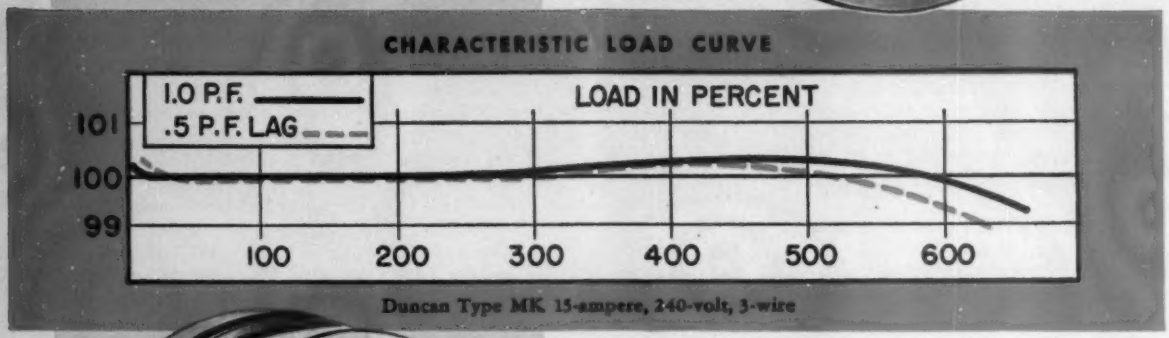
The clue to the economic future certainly will be closely associated with government economic plans and policies, but the final answer lies in consumer income levels and in consumer willingness to buy at a continued rapid pace. The latter factor, associated with the heavy reduction in business inventories that has been occuring since mid-1953, could well mean that a continuation of economic progress is to be expected.

Dr. Bunting, well-known southern economist, is president of Oglethorpe University, Oglethorpe Univ., Ga.

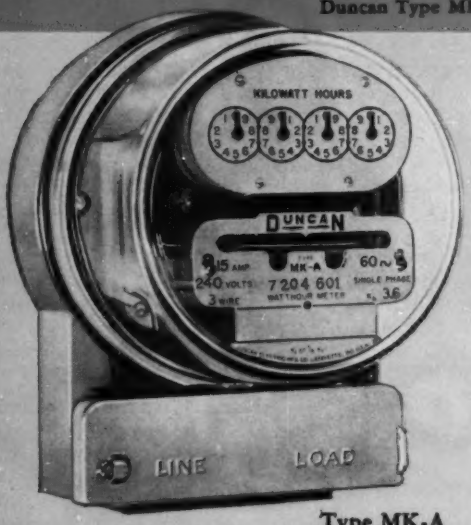
NEW DUNCAN SINGLEPHASE METER OFFERS . . .



Type MK-S



Duncan Type MK 15-ampere, 240-volt, 3-wire



Type MK-A

Extended Range Developments Pioneered by Duncan

1930—Type MD—15-ampere singlephase range extended to 60-amperes.

1949—Type MF—50-ampere singlephase socket meters with "extended range" capacity to 200-amperes.

1949—HD Device—mounting device with 200-ampere capacity for use on singlephase or polyphase.

1951—Type MH—50-ampere polyphase socket meters with "extended range" capacity to 200-amperes.

1954—Type MK—15-ampere singlephase with "extended range" capacity to 100-amperes.

MORE CAPACITY PER DOLLAR

● Duncan Electric Mfg. Co., pioneer* in "extended range" metering, now offers the Type MK singlephase meter—a completely new design with increased capacity to keep ahead of the expanding use of electric energy. The general purpose Type MK meter, nominally rated at 15 amperes, has "extended range" capacity to meter continuous loads to 100 amperes—light load performance remains the same—no increase in price.

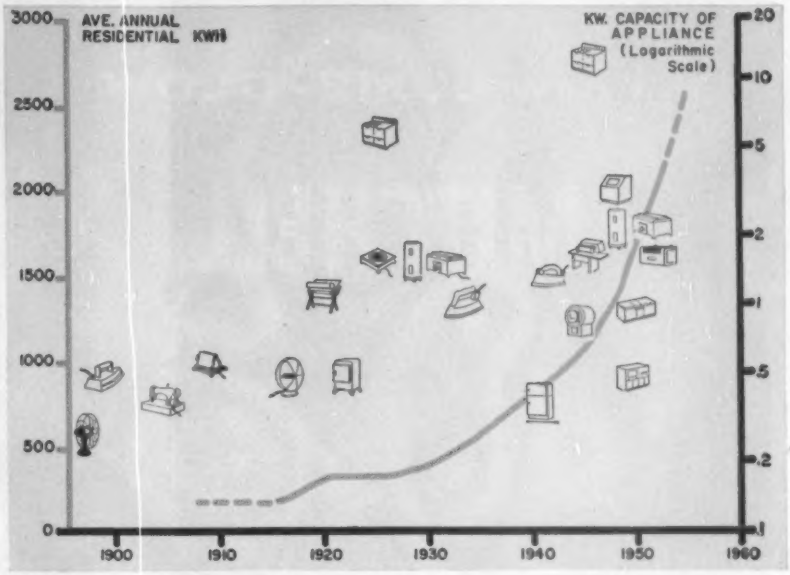
Growth in the Electrical Industry is well known—residential consumption doubling every 8 to 10 years. Numerous field tests have shown the present 15-ampere 3-wire general purpose meter (top capacity of 60-amperes) is now on the average less than half loaded. However, with the present *average* load running in the middle of the capacity range, more and more residential loads are pushing through the 60-ampere ceiling. Today's requirement for a sound investment, therefore, seems to be for *one meter* suitable for existing loads (minimum, average, and up to 100-amperes) and for loads of the future.

More Kva of Capacity to handle greater loads, without sacrificing performance at lighter loads, is the purpose of the new Duncan Type MK singlephase meter. This, *without an increase in basic price, means more metering capacity per dollar* capital investment.

FEATURES

The maximum temperature rise of the current coil is approximately 50°C with a load of 100 amperes when installed in a standard pan type socket, such as the Duncan Type C—#2 copper conductors. The temperature rise at the socket jaws, under these conditions, is only 40°C. A factor in obtaining the capacity of the current coil circuit is the elimination of all mechanically clamped or bolted joints.

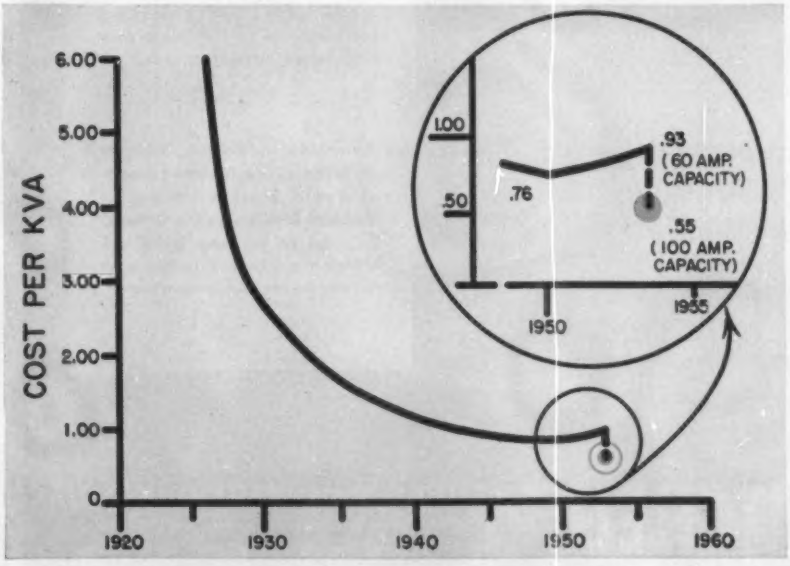
Arc Gaps, Plus Improved Insulation, protect the meter against lightning discharges. The gaps are adjusted to flash over at approximately 4,500 volts r.m.s. (6.5 KV 1½ x 40 micro sec. impulse) which is approximately 50% of the insulation level of the electromagnet. Both current and potential coils are molded in high temperature polyvinyl chloride.



RESIDENTIAL LOAD GROWTH AND APPLIANCE DEMANDS

The Basic Watthour Constant of .6 was selected to facilitate widening the load range and to aid in standardization of constants. The new 15-ampere MK, operating near maximum capacity—100 amperes—will still have a disc speed approximately 10% lower than the superseded Type MF at its maximum capacity of 60 amperes.

Many Features Continue in the Duncan MK design: *Alnico damping magnet*—originally introduced in watthour meters by Duncan—resists changes due to lightning discharges (less than ¼ of 1% calibration change with discharge current even in excess of 50,000 amperes); top bearing is a K-monel pin with a carbon graphite ring; lower bearing is time proven jewel and ball combination; *no mechanical adjustments*—bearings tighten against fixed shoulders to insure proper location of disc, and worm wheel is fastened to frame to insure proper mesh; convenient register reset; *microset adjustments*—all accessible from the front and operated with a standard screwdriver.



AVERAGE METER COST PER KVA
Based on usage of 5 and 15-ampere meters.

DUNCAN ELECTRIC MFG. CO.
Lafayette Indiana

(Advertisement)

Beautiful, Practical Lighting

the new **LUME-GLOW**

by **MITCHELL**

IDEAL LUMINOUS SEMI-INDIRECT COMMERCIAL LUMINAIRES

New MITCHELL "Lume-Glow" sets the standard of excellence in comfortable indirect lighting. It is specifically designed for low brightness contrast and features pleasing eye-ease illumination. Designed for pendant mounting, Lume-Glow luminaires achieve a desirably high upward component coupled with diffused downward lighting to achieve this new concept in glare-free, restful illumination. The superb combination of abundant light output with low surface brightness is achieved through the original use of polystyrene plastic formed in an ultra-shallow streamlined contour of unusual beauty and distinction. Finally, "Lume-Glow" offers exceptional advantages in simplified installation and maintenance. For full details, specifications and performance data, write for Bulletin No. 4.

★

The "Evenglo" plastic diffusing shield provides the most desirable low surface brightness

★

High upward component, combined with plastic diffusing shield, provides the eye-ease illumination of indirect lighting

★

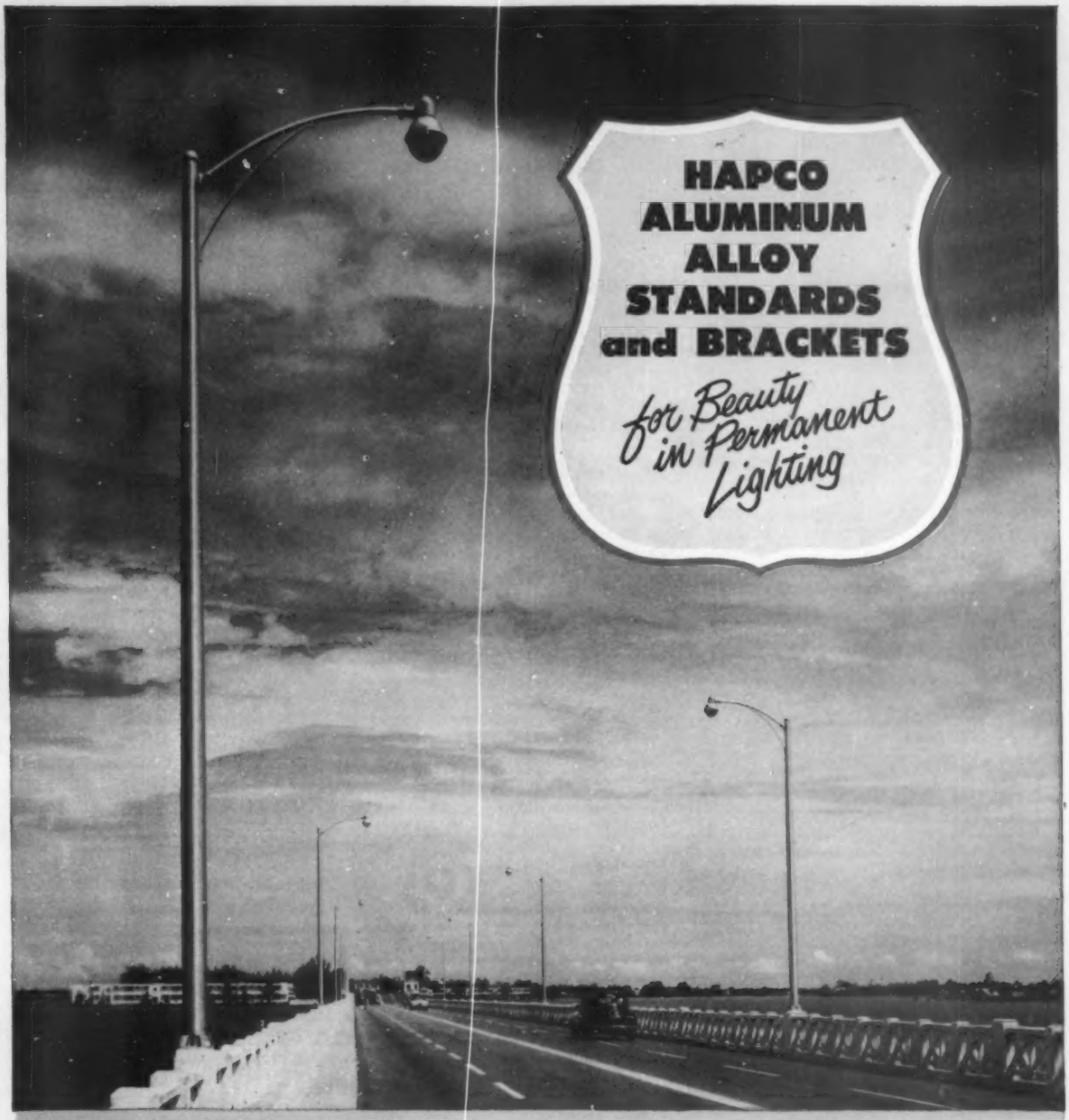
Ultra-shallow contour achieves a smart, streamlined effect to create clean, tailored-looking installations in the most distinguished interiors

★

Available in 4-Foot, 2-Lamp or 4-Lamp Luminaires (choice of Rapid Start, Slimline or Medium Bi-Pin), and in 8-Foot, 2-Lamp or 4-Lamp Slimline. Matching Spots, Fill-Ins and Corner Boxes are available

where quality counts, specify **MITCHELL**

MITCHELL MANUFACTURING CO.
2525 N. Clybourn Ave., Chicago 14, Illinois
In Canada: Mitchell Mfg. Co., Ltd., 19 Waterman, Toronto



DESIGN FEATURES

- One-piece construction in all lengths to 40 ft. No longitudinal seams or transverse joints.
- Heat-treated alloys used throughout, give consistently uniform high strength.
- Designed for either overhead circuits or underground wiring.
- Venetian column type of taper acclaimed by architects.
- No forms or mandrels used to shape pole. Taper can be varied to suit individual requirements.
- Light weight cuts installation cost.
- Entire surface ground to mat finish which gives best surface for non-reflecting, durable oxide film.
- No painting needed at any time. Saves maintenance cost.

SPECIFICATIONS

Standards available up to 40 ft. in height, with Standard Base or Transformer Base.

Brackets from 3 ft. to 15 ft., in round or oval cross-section, with 1¼ in. or 2 in. slip fitter or threaded ends.

Handholes, Pole Top Pin Assemblies, Ballast Attachments, Spreader Arms, Levelites, and other accessories available.

HUBBARD ALUMINUM PRODUCTS COMPANY

MANUFACTURERS OF HAPCO QUALITY ALUMINUM PRODUCTS

A Division of HUBBARD and COMPANY

6301 Butler Street • Pittsburgh 1, Pa.

CATALOGS and BULLETINS

Available Free to Readers of Electrical South upon Request

1008—Motor Starters

A new bulletin, Number 514-515, has been issued by the Industrial Controls Division of Federal Electric Products Co., 1429 Park St., Hartford 6, Conn. Describing in detail the company's line of combination motor starters, the booklet is copiously illustrated with photos of the various types available and includes detail drawings of special features.

1030—Lighting Catalog

An eight-page descriptive bulletin issued by Pittsburgh Reflector Co., 450 Oliver Bldg., Pittsburgh 22, Pa., describes in detail the most popular items in the Pittsburgh line of fluorescent and incandescent lighting equipment. Each item is fully illustrated and cataloged and many are accompanied by installation plans.

1032—Receptacles and Plugs

Russell & Stoll Co., Inc., 125 Barclay St., New York, N. Y., has released a bulletin, No. EL-4-46, describing the new Ever-Lok receptacles, plugs and cord connections for 30 amperes, 440 volts, a-c. Typical uses are for heavy duty industrial purposes.

1048—Plug-In Strip

An illustrated catalog showing the complete "Plug-in" Strip line has recently been published by National Electric Products Corp., Pittsburgh, Pa. This eight-page illustrated brochure pictures the three and six foot standard lengths of the multi-outlet branch circuit assembly.

1054—Fluorescent Fixtures

Catalog No. 53 illustrates 74 pages of commercial and industrial designs. Featuring all types suitable for schools, industrial and commercial buildings, retail stores, etc. This catalog is available from the Kayline Co., 2480 E. 22nd St., Cleveland 15, Ohio.

1058—Conductor Fittings

A complete catalog, illustrated and listing prices, has been issued by Penn-Union Electric Corp., Erie, Pa. Described is the company's complete line, including a wide variety of service connectors, terminals, tees, and taps; also many other types of conductor fittings.

1076—Modular Lighting

A 20-page booklet containing interesting and useful information about the "modular system" of lighting can be obtained by writing to the Mitchell Manufacturing Co., 2525 Clybourn Ave., Chicago 14, Ill.

1082—Lighting Equipment

Preprints of the F. W. Wakefield Brass Co.'s eight-page section on lighting which will appear in the 1954 Sweet's Catalog are available on request to Wakefield, Vermilion, Ohio. Included are descriptions of 11 major types of lighting equipment.

1086—Cable Connectors

Tomic Sales and Engineering Co., 4864 Woodward Ave., Detroit 1, Mich., now have available catalog sheets containing data on the complete line of their connectors, couplings, and cable connectors.

1088—Fittings and Fixtures

A 32-page illustrated catalog covering Killark fittings and fixtures is offered by Killark Electric Mfg. Co., Vandeventer and Easton Aves., St. Louis 13, Mo.

1090—Midget-Size Busduct

Complete information on Power Plugin, the new, midget-size busduct, is found in bulletin No. 720, available from Frank Adam Electric Co., 3650 Windsor Pl., St. Louis 13, Mo.

1092—Electrical Boxes

Steel City Electric Co., 1207 Columbus Ave., Pittsburgh 12, Pa., offers a catalog of their complete line.

1110—Aluminum Cables

A new 16-page booklet, OK-1070, published by the Okonite Co., Passaic, N. J., contains the latest information on insulated aluminum power cables. It is based on two AIEE papers and reviews the properties, problems and advantages.

1130—Conduit Fittings

The latest completely illustrative catalog on their diversified line of conduit fittings is announced by the Atlantic Conduit Fittings Co., 589 Atlantic Ave., Boston 10, Mass.

1136—Space Heating Guide

Cavalier Corp., Chattanooga 2, Tenn., has prepared a Guide for Cal-

ELECTRICAL SOUTH
806 Peachtree St., NE
Atlanta 5, Ga.

October, 1954

Gentlemen:

Please send me the bulletins and catalogs indicated.

(Print Plainly)

Name ..... Title .....

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Circle numbers below. Bulletins and catalogs will be mailed promptly.

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1058	1076	1082	1086	1088
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1182	1184	1186	1188	1190
1192	1198	1200	1202	1204
1208	1214	1218	1220	1222
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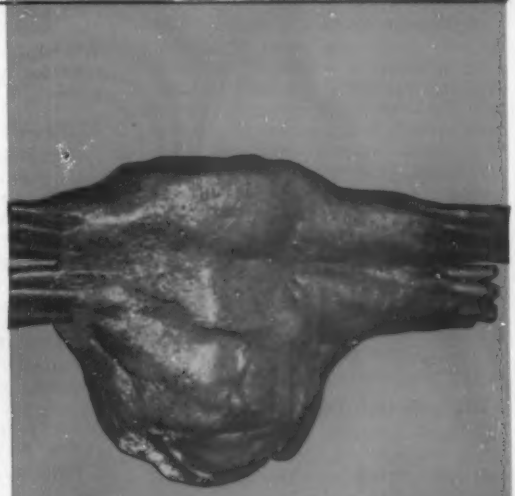
For Profitable, Maintenance-Free Construction

Make CLEAN CONNECTIONS with a KEARNEY Conductor Cleaning Brush

Just a few, fast strokes of this specially designed, "V"-shaped brush quickly cleans off the most stubborn corrosion and foreign matter . . . even between conductor strands. KEARNEY CONDUCTOR CLEANING BRUSHES are available with a sure-grip Insulated Metal handle, or with a universal fitting for all Fit-On poles. As they are used, the brushes can be easily rotated, or replaced when necessary.

Keep CONNECTIONS CORROSION-FREE with KEARNEY AIRSEAL



It's just a matter of seconds to *permanently* seal every connection from moisture, oxidation and corrosion with this pliable, hand-moulded compound. KEARNEY AIRSEAL's high dielectric strength makes it particularly outstanding as both an anti-corrosion seal and insulator, even on underground applications. Hot, cold, wet or dry, AIRSEAL will not age or deteriorate. It always remains pliable and tight.

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For Better Construction *SAFER* Maintenance!

culations of Electric Space Heating. It is based on study of several thousand installations of electric heat and is a handy reference for calculating electric heating requirements and estimating operating costs. The booklet contains discussion, charts, and floor plan examples.

1150—Fluorescent Fixtures

Colorful, 20-page catalog. Front cover shows interesting illustration of "Light through the Ages." Catalog gives complete specifications and pictures of entire Naturlite line manufactured by Light & Power Utilities Corp., 1035 Firestone Blvd., Memphis, Tenn.

1156—Industrial Lighting

The new Abolite Catalog and Handbook contains a complete descriptive story of all commercial, industrial floodlighting equipment manufactured by Jones Metal Products, Inc., West Lafayette, Ohio.

1166—Electrical Fittings

A 40-page illustrated catalog and price list on the Gedney line. Shown and listed are conduit, threaded entrance, SEC, EMT and ground fittings, and box connectors for both armored and non-metallic cable. Copies are available from Gedney Electric Co., RKO Bldg., Radio City, New York 20, N. Y.

1172—Busduct Manual

A 68-page manual, Bulletin No. B-4272A, describing types of busduct and accessories available, and presenting application and test data, specifications, and information on pricing a typical busduct installation is available from Westinghouse Electric Corp., Box 2099, Pittsburgh, Pa.

1178—Remote-Control Wiring

Bulletin 16-200 is a 36-page manual describing layout and installation of remote-control wiring, and is available from General Electric Co., Construction Materials Dept., Bridgeport 2, Conn. Advantages and explanation of the system are followed by illustrated installation procedure.

1182—Switch Insulators

A new bulletin giving specifications, engineering data, contours, dimensions, etc. on its full line of Switch and Bus Insulators has been recently published by Victor Insulators, Inc., Victor, N. Y. Write for Bulletin No. 5 or use reply coupon.

1184—Approved RHW Wire

Bulletin No. 1018 describing first Underwriters' Approved Type RHW Wire, developed to meet the new National Electrical Code standards, is available from Simplex Wire and Cable Co., 79 Sidney St., Cambridge 39, Mass.

1186—Electric Heating File

This file offered by Electromode Corp., 45 Crouch St., Rochester 3, N. Y., is made up to suit individual requests for information on Electromode Heaters for domestic, industrial or farm use; or to contain material on the complete Electromode line if desired.

1188—Dry-Type Transformer

An eight-page illustrated booklet on the Type E, totally-enclosed, nonventilated dry-type transformer is available from Westinghouse Electric Corp., Box 2099, Pittsburgh 30, Pa. Made in ratings from three to 50 kva, the transformer provides greater economy for plant distribution systems where dirt, lint, and non-explosive dust are a problem.

1190—Electrical Fittings

Blackhawk Industries, Dubuque, Iowa, offer a new two-color bulletin describing and illustrating B-I Electrical Fittings and Fixtures. Included are conduit and cable fittings, conduit and cable straps, staples, box supports, sill plates, locknuts and bushings, wire holders and yard lights.

1192—Wire Pulling Lubricant

Illustrated six-page folder showing the advantages of an improved Y-Er Eas wire pulling lubricant is available from Electro Compound Co., 3812 150th St., Cleveland 11, Ohio.

1198—Wire Handling Devices

Clyde W. Lint, 2323 W. 18th St., Chicago 8, Ill., manufacturers of the Jiffy Line of wiring handling devices, has issued a three-page catalog insert of descriptions and price schedules for the materials in the Jiffy Line.

1200—Fluorescent Fixtures

Complete information on commercial fluorescent and incandescent lighting of all types, for offices, schools, libraries, etc., and all industrial locations available from Benjamin Electric Manufacturing Co., Leader Div., Northwest Highway, Des Plaines, Ill.

1202—Code Explanation

Bulletin 2660 contains up-to-date information (following 1953 Code revision) on why equipment for hazardous locations is designed and built as it is, and is available from Crouse-Hinds Co., Wolf & 7th, No., Syracuse 1, N. Y.

1204—Conduit Fittings

Illustrated Catalog available upon request to Electrical Fittings Corp., Woodside, N. Y., or their nearest warehouse in your locality contains complete information on the company's electrical conduit fittings, conduit nipples, couplings, and elbows.

1208—Contemporary Lighting

Two brochures describing contemporary lighting fixtures for residential, commercial and display purposes. Included are sizes, types, framing-in details, illustrations. Prescolite Mfg. Corp., 2229 Fourth St., Berkeley 10, Calif.

1214—General Catalog

General catalog of Royal Electric Co., Inc., Pawtucket, R. I., covering flexible service and lamp cords, cord sets, extensions, trouble lights, wiring devices and decorative Christmas lighting is available to wholesalers. Dealer catalogs may be secured from Royal distributors.

1218—Carbon Products

A 28-page catalog on Motor and Generator Brushes and carbon products telling how to order brushes, grade recommendations, characteristics and description of brush grades is available from the Helwig Co., 2536 North 30th St., Milwaukee, Wis.

1220—Stadium Lighting

The Pyle-National Co., 1334 N. Kostner Ave., Chicago, Ill., announces the availability of a new eight-page bulletin, No. 605, on stadium lighting, describing in detail floodlighting of a typical outdoor athletic arena stressing the importance of using fully enclosed floodlights.

1222—Carbon Lamps

Nalco Candylbeme decorative carbon lamps are the subject of a new leaflet which is now available from North American Electric Lamp Co., 1014 Tyler St., St. Louis, Mo. Descriptions, specifications, and list prices are given for the lamps.

1224—Electrical Equipment

The Wadsworth Electric Mfg. Co., Inc., Covington, Ky., has issued a new catalog Con 15-0 and Bulletin W. C. B. 53-1, containing data on their lines of Safety Switches, Service Equipment, Distribution Panels and "E-Z-RED" Circuit Breakers.

1228—Time Controls

A revised and enlarged edition of the booklet "How Time Controls Save Work, Time and Money on the Farm" has been announced by the Paragon Electric Co., Two Rivers, Wis. The revised edition includes new time control applications devoted to showing farmers how to earn more money by actually doing less work.

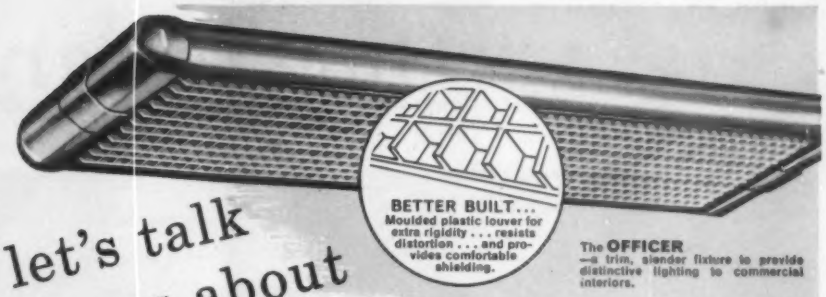
1230—Hot Line Repairs

Twenty time-saving techniques for making hot line repairs and replacements are detailed in a new 72-page, spiral-bound, pocket-size book for on-the-job use. Included are useful charts giving the characteristics of all bare conductors. Copies are available from James R. Kearney Corp., Dept. HF, 4236 Clayton Ave., St. Louis 10, Mo.

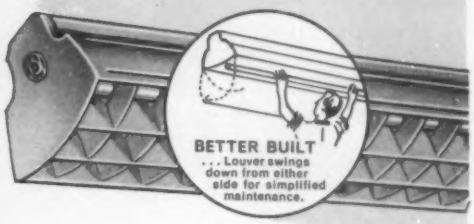
1232—Electrical Controls For The Textile Industry

Fully described in 8-page circular by The Arrow-Hart & Hegeman Electric Co., Hartford 6, Conn. Includes: shock-resistant, lint-proof Loom Switch and also Starters, Contactors and Combination Starters in lint-proof NEMA XII enclosures.

let's talk business about



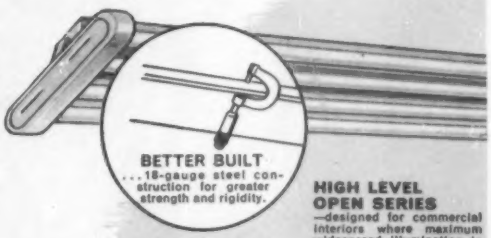
The **OFFICER**
—a trim, slender fixture to provide distinctive lighting to commercial interiors.



The **SCHOOLMASTER**
—an all-steel unit which provides upward light for comfort lighting, ideal for close seeing.

what makes BETTER BUILT Lighting Units

BETTER BUSINESS for YOU!

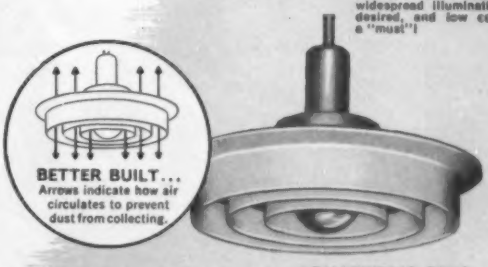


HIGH LEVEL OPEN SERIES
—designed for commercial interiors where maximum widespread illumination is desired, and low cost is a "must"!

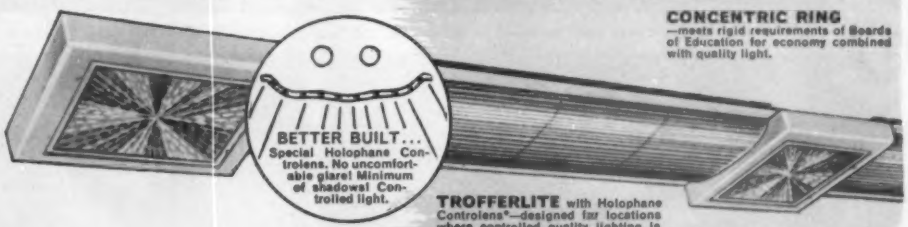
It is good business to insist on units with "Better Built" features like those illustrated here. That's because such features help cut operating costs, speed up and simplify maintenance, and insure reduced obsolescence and long-life dependability.

It is good business for the user, because such units give better service and save more money. It is good business for those who recommend and install lighting equipment, because the installation of such units results in greater satisfaction and increased good will.

Shown here are but a few Benjamin Leader Line units, each with just one of its "Better Built" features. Manufacturing "Better Built" lighting equipment is a tradition with Benjamin. That's why you can rely on getting Benjamin Quality in every Leader lighting unit.



CONCENTRIC RING
—meets rigid requirements of Boards of Education for economy combined with quality light.



TROFFERLITE with Holophane Controlens*—designed for locations where controlled quality lighting is desired.

*Copr., the Holophane Co.

For a complete showing of the Benjamin Leader Line, send for our FREE CATALOG.

BETTER BUILT
TO SERVE YOU BETTER

Exclusive licensee of the Leader Line in Canada: Robertson Irwin Limited, Hamilton, Ontario

BENJAMIN TRADE MARK *Leader Line*

Sold Exclusively through Electrical Distributors

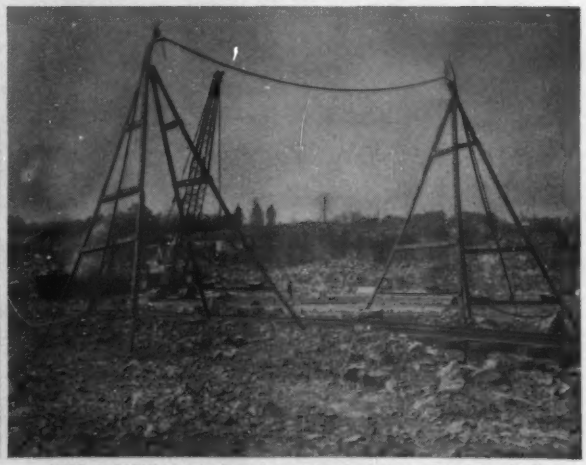
Leader Division of Benjamin Electric Manufacturing Company, Dept. Z-1, Des Plaines, Illinois . . . makers of famous Benjamin and Leader Line lighting equipment and sound signals for Industry, Institutions and Commerce.

B-6877

"Our *Tiger Brand*

NOTICE THE CABLE TRAY fastened to the shovel. This was developed by Universal Atlas for easier cable handling.

TWO WORKMAN WATCH from blast shelter as charge is set off in distance. Low horses cushion cable from shock of falling rock.



HERE A CABLE is raised on horses to clear the railroad track. It feeds the shovel visible in background.

Amerclad lasted 12 years"

Says Chief Electrician, Hudson Plant
Universal Atlas Cement Company

Year after year, at this quarry, the Amerclad is exposed to knife-sharp fragments of flying rock. During the summer, the rock often gets so hot that you can't even touch it. Other times, the cable lies out in the rain and snow—often at sub-zero temperatures.

At the Hudson, N. Y. quarry of Universal Atlas, Chief Electrician Frank Rodmond said, "This Amerclad runs the constant danger of being hit with flying rock fragments through secondary blasting. Yet the down-time cost of this operation is so high that we just can't stand cables that keep failing. We kept that last batch of Amerclad 12 years before we replaced it, yet it was still serviceable when we switched over to new Amerclad."

If you want service like this, specify Amerclad the next time you need cable that can really take it. Amerclad is available in a great many sizes and constructions, with or without shielding. There is a type to power anything from a river dredge or mine locomotive down to a rough and tumble electric hand drill. *Send the coupon,* and get more information.

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THIS IS A TYPICAL DRILL. It uses a 4-conductor No. 8 Amerclad cable.

A STANDARD TIGER BRAND CABLE FOR EVERY SPECIAL JOB!

paper & varnished cambric cable
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aerial, underground & submarine cable
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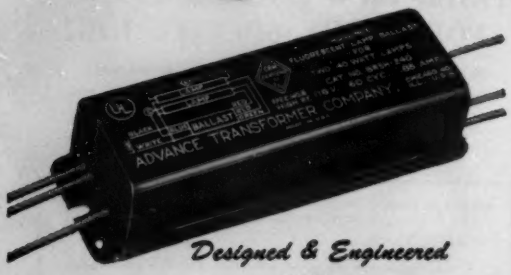
U·S·S Tiger Brand ELECTRICAL WIRE & CABLE

UNITED STATES STEEL

75 YEARS OF LIGHT'S PROGRESS



Designed & Engineered
BY THE
WORLD'S LARGEST MANUFACTURER
DEVOTED *Exclusively* TO THE PRODUCTION OF
FLUORESCENT LAMP BALLASTS

CBM CERTIFIED by ETL

A tribute:

To Thomas Alva Edison, whose developments opened up an unending vista of better light for modern man . . .

To his pioneering spirit, without which our modern fluorescent lamp might have taken additional centuries to develop . . .

To the engineering skill and know-how that has created for our use, further developments in more practical, lower priced lighting for modern adaptations . . .

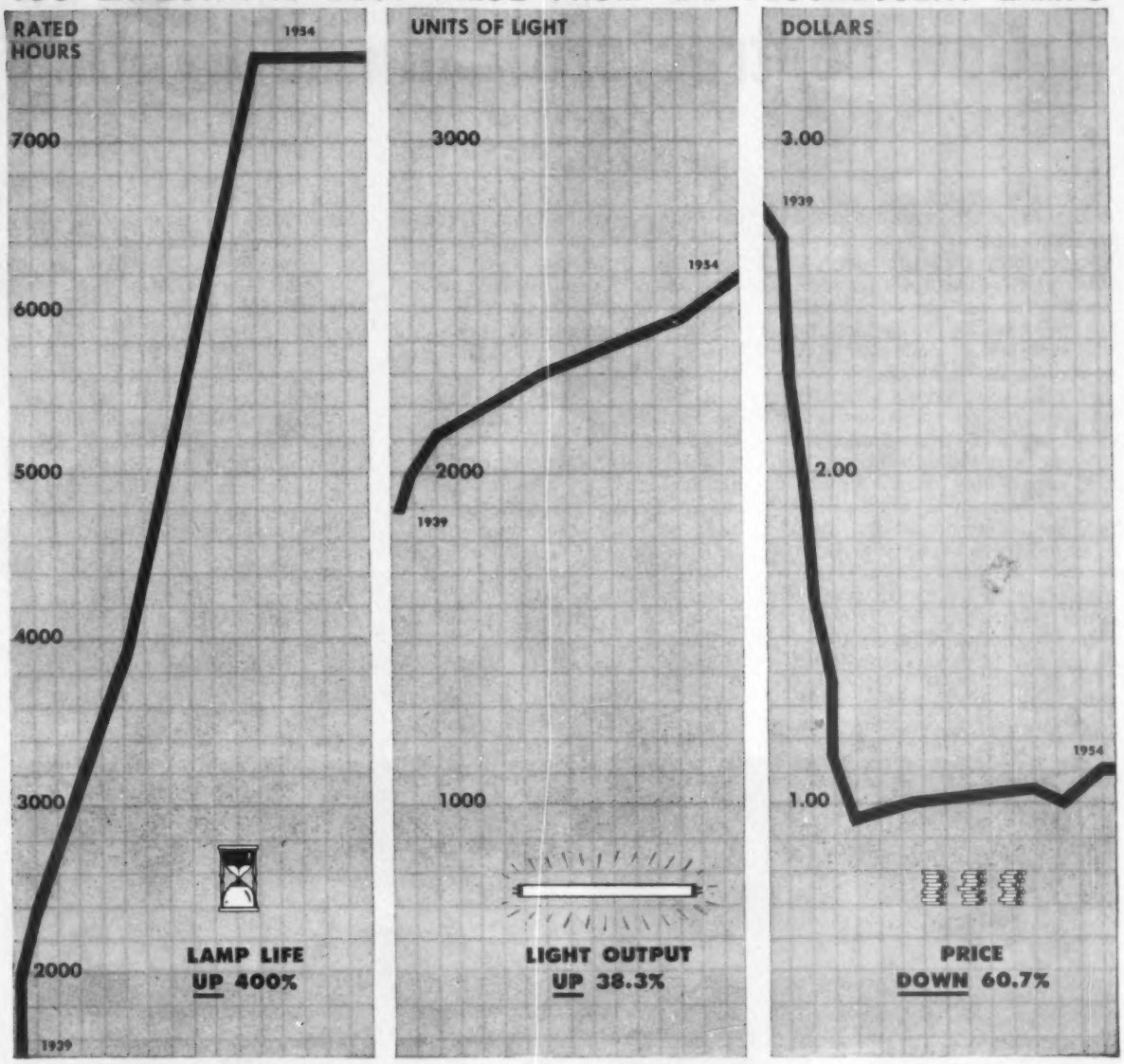
We, who are engaged in the business of lighting have many thanks to offer to the countless thousands who toiled to bring light to the world . . .

A pledge . . . that Advance Transformer Co., will constantly strive to maintain the high standards established within our industry, ever seeking new methods to bring better light to more people at lower costs.

ADVANCE TRANSFORMER CO.

Cable Address "ADTRANS"
2950 N. WESTERN AVENUE
CHICAGO 18, ILLINOIS, U.S.A.

YOU EXPECT THE BEST VALUE FROM G-E FLUORESCENT LAMPS



16 times more value for your fluorescent lamp dollar than in 1939

Today you don't have to pay more than $1.10 for the finest fluorescent lamp made: General Electric. Fifteen years ago it would have cost you $2.80 or $1.70 more. And while price has been going down, we've been pushing quality up. General Electric has upped light output 38%, increased lamp life 400%.

In terms of what you really judge lamps by, a General Electric 40-watt fluorescent lamp that lists at $1.10, plus tax, today is a *16-times bigger value than it was in 1939.*

For further information, contact your G-E lamp supplier or write to Lamp Division, General Electric, Department 166-ES-10, Cleveland 12, Ohio.

Progress Is Our Most Important Product

GENERAL ELECTRIC

How contractors can sell lighting

◆ SELLING ISN'T ANYTHING NEW for the successful contractor. He has always told a quality story and sold high standard workmanship. These have been the chief reasons for his success in the past and they will continue to assure profitable operations in the future.

If profitable bid jobs were always assured, electrical contractors could be perfectly satisfied with their present selling routines. But the encroaching buyers' market adds one more facet to the contractors' selling considerations. Created sales are invariably profitable contract jobs and the aggressive contractor will concentrate on getting them.

Lighting jobs now represent over 50 per cent of the average electrical contractor's annual revenue. This percentage will continue to rise, in the future, for two reasons:

1. There is no forseeable ceiling to the amount of artificial light which is economically sound for industrial, commercial, and home lighting.

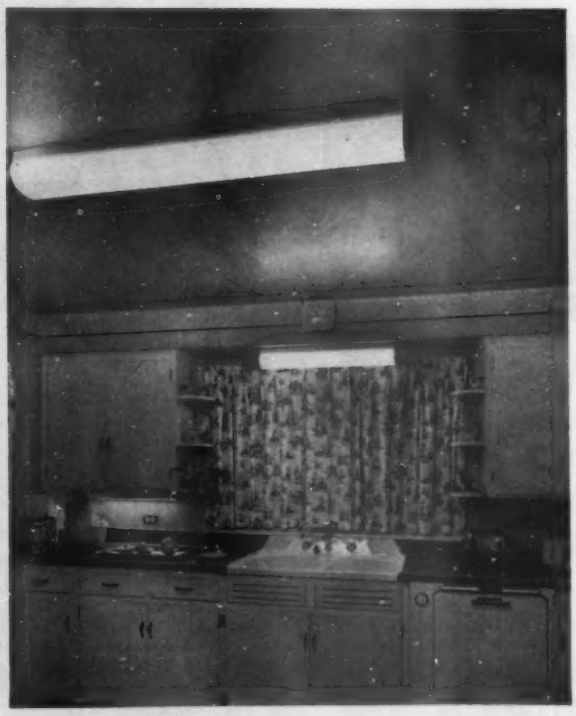
2. New light sources and lighting applications are continually being developed.

Consequently, the electrical contractor must familiarize himself with "Operation Lighting" and the basic reasons for its importance in order to create profitable, contract lighting jobs. Adequate lighting in industry is a production tool. Adequate lighting in retail establishments is a selling tool for the store. And adequate lighting in the home promotes greater livability. So remember these points when you go out to sell "Operation Lighting" and base your sales presentation around them.

Potential market

It has been estimated that 50,000 industrial plants, both large and small, in the Southern and Southwestern states need three to four times as much light. This seems almost unbelievable until we stop to think about the post-war change in industry's attitude toward lighting.

Until recently, some industry has never thought of good lighting as an industrial tool of production—but it is. Consequently, industry has lagged behind business and

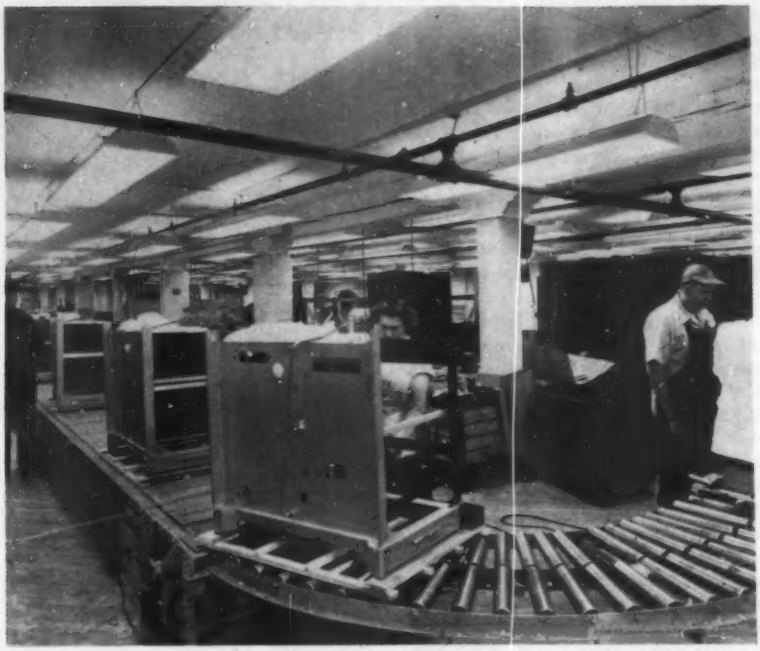


Before and after views illustrate typical relighting jobs in residences which can be most lucrative for the enterprising contractor. Plastic-shielded fluorescents at kitchen ceiling center and over sink give three times as much light as with earlier "satisfactory" lighting, ten times as much over sink and 20 times as much at counter top. New food center lights were also installed under cupboards. The contractor must seek such potentials.

modernization

by Walter W. Becky

Lamp Division
General Electric Co.



To solve the need for more light for easier comfortable seeing around this stove assembly line, upward light reaches ceiling from open-top fixtures with staggered spacing. With 80 footcandles well distributed throughout the area, and light finishes on the walls and ceiling, workers' seeing problems have disappeared. (Below) Previous lighting conditions.

commercial establishments in profitably modernizing its lighting.

Recent Bureau of Census figures show that the percentage of skilled industrial workers, in the last 40 years, has increased from 64 per cent to 85 per cent of the total labor force. Industry has come to realize that the investment per factory worker and the tools with which he works are infinitely greater than the investment per office worker. Industry has also found out for itself that good lighting has the following benefits: increased production, fewer rejects, better workmanship, continued production by older workers, less eyestrain, reduced accidents, higher morale, and better housekeeping.

Selling industrial jobs

The opportunities for selling industrial lighting are better than ever. And when the electrical contractor initiates a job his net profits are always higher. "But how," you might ask, "do I go about selling an industrial prospect a relighting job?" Well, here is a simple six step plan.

1. By demonstration. There are many "devices" available from lamp manufacturers which you can use to prove more lighting can speed work and reduce seconds.

2. By comparison. Compare your prospect's present lighting with accepted standards. Use your light meter and point out that the trend is toward lighting systems which give both upward and downward light. Point out that new industries are making their plants as cheerful a place to work as their offices.

3. By testimonials. Show what other managements think after their plants have been relighted. You can use case histories to show that better lighting *pays for itself* in more work as well as in other important ways.

4. By letting your prospect look at the kinds of lighting others have used to solve similar problems. They help your client visualize how much better his plant will be with good light.

5. By clinching the sale with evidence of your own ability to do top quality work at a fair price. Point out the quality features and cost-cutting maintenance advantages of the lighting installation you are trying to sell him. Show him in dollars and lighting "sense" how you can save him money.

6. By asking for his signature on your contract.

Remember, you can get help on

all of your sales problems from lamp manufacturers, fixture manufacturers, and electric utilities. So use their services and sales aids to get this industrial business.

The potential market in office lighting is tremendous. 15,000 office buildings need from three to five times as much light as they now have. In this field, as in industry, lighting modernization has to pay its way in increased productivity and reduction of errors. And when you sell lighting modernization, this should be your best selling point.

Point out to your potential customer that the visual tasks encountered in office work are long and hard, the hours are long, and that older workers particularly need higher levels of illumination. The average level of illumination in most offices is between 15 to 18 footcandles. This makes its cost only about 25 cents per square foot of office space per year, whereas the average salary cost is about $25.00 per square foot of office space per year. So inadequate lighting costs about one per cent of salaries.

Cost provisions

The cost of raising the inadequate lighting level to 50-54 footcandles, is an additional two per cent. This raises the cost of good lighting to about 75 cents per square foot of office space per year. In order to pay for this additional increase in cost, office employees must increase their productivity by two per cent. For example, if a billing clerk processes 50 bills under the old lighting, she only has to process one more to pay for her increased share of the cost. A typist would only need to type one-half more letter to pay for her share.

The Federal Government has conducted exhaustive tests to see if relighting will increase productivity. Office workers in the Bureau of Internal Revenue increased their production five and one-half per cent when the level of illumination was raised from 15 to 50 footcandles. The Post Office at Richmond, Virginia, relighted and productivity was increased eight per cent.

Remember, that it is not enough to increase the amount of footcandles. People perform difficult seeing tasks for long periods of time. Therefore, the selection of fixtures, the shielding of the light source, and the brightness ratio of desks and the surroundings to the work are equally as important as increased footcandles.

Schools are in their biggest building boom in history. The architects are specifying good lighting for these schools and you, as the electrical contractor, are installing it. Old schools also are being lighted as rapidly as funds become available.

School building boom

It is in the relighting of old schools that the electrical contractor can furnish a valuable service. He can intelligently survey the school system and determine the wiring and lighting needs. He can make lighting recommendations. He can wrap them up in unit price packages. He can suggest a program of doing first things first. In school lighting he can combine good prospective business with the furnishing of a needed community service.

There is a potentially great market for farm relighting and electrical modernization. The Bureau of Agricultural Economics research has shown that farm lighting is almost 50 per cent below the present average for city residence lighting. This, in spite of the fact that farms require more outside lighting than do urban homes.

Today, 90 per cent of our farms are electrified. When electricity was first introduced to the farm consumer, it actually meant lighting and light bulbs because no one knew of any other farm uses for electricity. And lighting in those days meant a hanging cord and bare bulb where the old kerosene lamp was always placed.

Development in field

But as the electrical industry developed new products and techniques, electricity went out to the barns and barnyard areas—to the neglect of home lighting. Now, all that is changing because farmers know what light conditioning is and they like and want it. So the electrical contractor has two rural fields in which to sell lighting modernization — home light conditioning and barn and outdoor lighting. They may not be large jobs individually, but their combined potential market is tremendous.

Perhaps one of the biggest potential markets in the lighting industry today lies in the residential field.

This statement may be quickly questioned by any phase of the industry — electrical contractor, dealer, jobber, manufacturer, or electric utility company. Admittedly, the individual unit sales in this field are the smallest, but in the aggregate, they could be the largest.

Inadequate home wiring

The simple facts are these: The standards of lighting in the majority of American homes today are so far below those currently enjoyed in the commercial and industrial fields that any comparison becomes almost absurd. This applies only to the functional lighting, i.e., that is needed for the normal home seeing tasks. In addition, there can and should be lighting in the home for decorative effect; light to complement and beautify all of the home furnishings. With such wide opportunities, residential lighting could have more than doubled itself in each past decade, as have its sister fields of commercial and industrial lighting.

The foregoing are not vague and intangible generalizations. They have very real unit sales and dollar volume potentials. They lie in the more than a million new homes constructed each year and in the 45 million existing homes today. They take the form of lamps and fixtures, of wire and boxes, of contractor manhours and electric kilowatt hours.. True, these things have been supplied and installed in most homes since the turn of the century. But that is all!

Today's concept of lighting — of light conditioning — the American home offers the industry a real opportunity to "sell up" and to reverse the old trend of merely supplying a minimum of materials and service. It has a new sales appeal and real consumer benefits. From a marketing standpoint, it can mean selling the individual home three times the number of fixtures and lamps with five to six times the dollar value, installing at least twice the number of outlets, and more than doubling the kwh's consumed. The multiplying factor for these rather small figures is "millions of homes."

Justification for effort

Therefore, the fact remains that there are large — very large — potentials in this residential market today and for years hence. There is a great enough stake in it to justify a concerted approach to it by all segments of the industry — the contractor, dealer, jobber, manufacturer, and utility.

(*Continued on page* 122)

Certified lighting — a cooperative effort

A case history of the establishment of an all-industry co-operative drive to sell more and better lighting

by Edward C. Huerkamp
Westinghouse Electric Mfg. Co.
Chairman, Executive Committee
National Lighting Bureau
National Electrical Mfrs. Assn.

THE ESTABLISHMENT *of local all-industry co-operative promotions to sell more and better lighting holds great opportunity for the electrical industry. The certified lighting program now available through the National Lighting Bureau greatly simplifies the job of getting such activity underway. An outstanding example of the development of a co-operative effort of this kind is found in the Rhode Island area. While involving conditions that may vary greatly from those to be found in the South and Southwest, this case history is important because it represents one of the first successful applications of the ideas and materials developed by the National Lighting Bureau, some of which are illustrated in these pages.*—Editor

◆ CO-OPERATIVE ACTION—the approach that has been one of the strongest developmental traits of our country—has been brought to the selling of industrial and commercial lighting. It has been witnessed in effective action, during recent months, in the Rhode Island area. There, facing the need for reshaping an economic picture that had been predominantly angled to one-industry communities, the electrical industry foresaw the importance of relighting as an integral part of any re-development program.

A committee, drawn together within the structure of the Electrical League of Rhode Island, was formed under the chairmanship of W. I. Colson. The incentive for this formation was the news that a Certified Lighting program was being set up by the National Electrical Manufacturers Association, under its newly-formed National Lighting Bureau. Details were secured by Chairman Colson and reported to his committee. Further details were presented and discussed during meetings of the manager of the National Lighting Bureau with this Lighting Committee of the Electrical League of Rhode Island.

Test of material

Step by step, the material being developed by the National Lighting Bureau was presented in draft form to the Rhode Island Lighting Bureau. Qualified members of the latter group were asked to express their criticisms and suggestions. This was in keeping with the intent to develop the program with the beneficial guidance of leaders in all segments of the industry. Each part of the program was carefully studied by committee members. Suggestions and criticisms were routed back to the National Lighting Bureau.

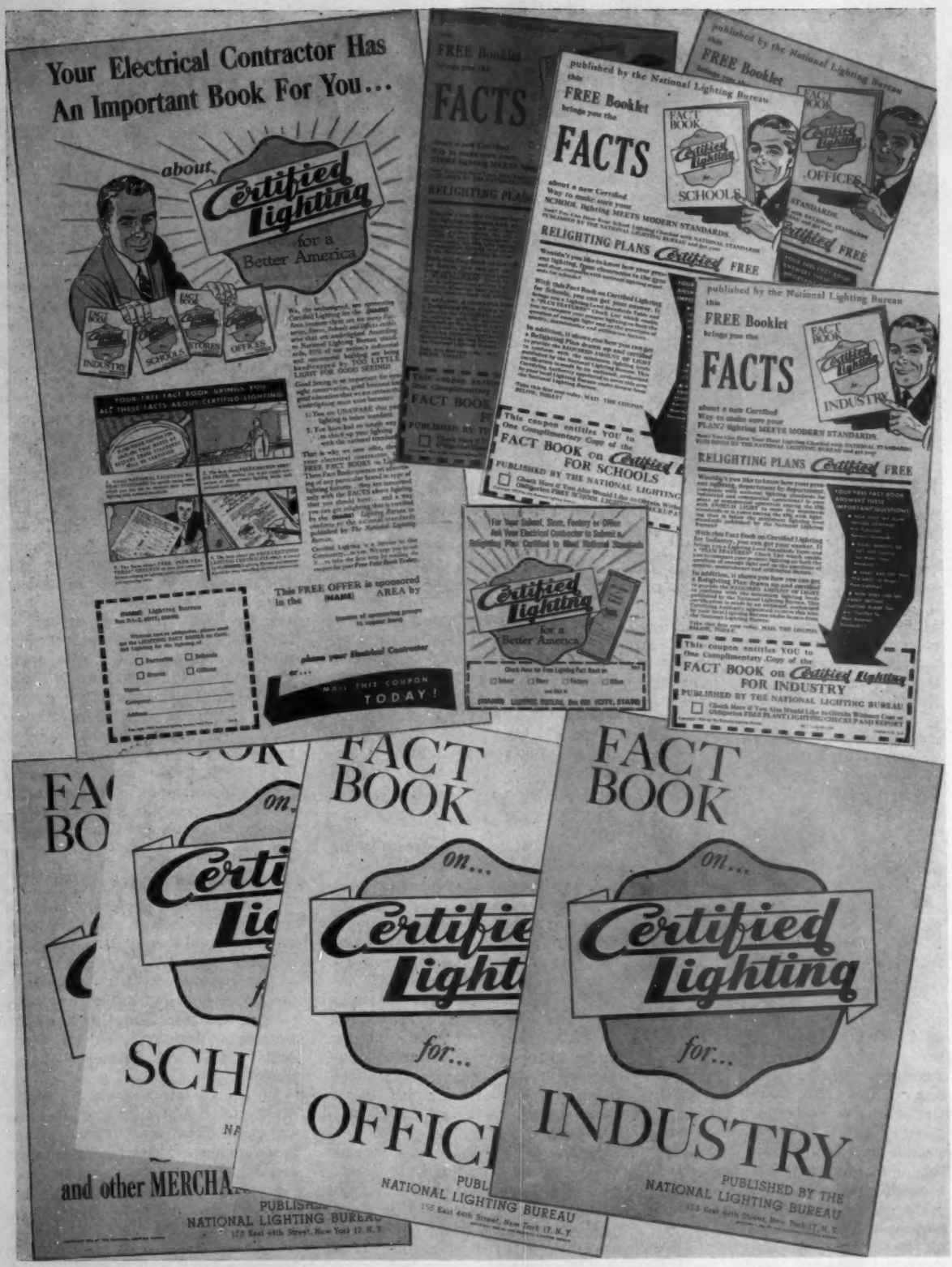
In the initial phase, discussions were carried on at weekly meetings of a committee of representatives of all portions of the local electrical industry. As the planning stages progressed, members of the steering committee were named chairmen of subcommittees to handle special assignments.

Paul Manchester, senior power sales engineer, Blackstone Valley Gas and Electric Co., was appointed chairman of the subcommittee on training; A. V. Bartlett, Jr., president, Rust Electrical (contracting) Co., Inc., became chairman of the subcommittee on finance; Cyril R. Brodhead, power sales manager, Narragansett Electric Co., was named chairman of the subcommittee on technical matters, under which will come the certification operation; William M. Freudigman, executive secretary, Electrical League of Rhode Island, was appointed chairman of the subcommittee on promotion; Robert W. Waterman, manager, Providence Branch of the General Electric Supply Co., became chairman of the subcommittee on registration.

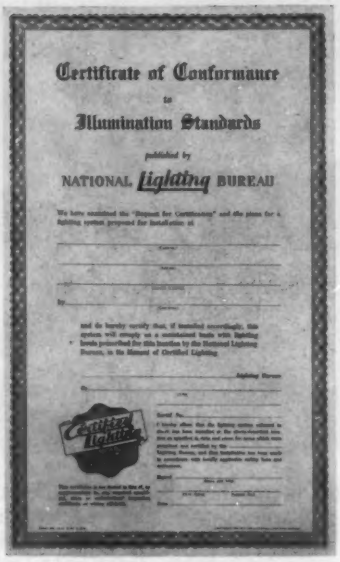
Budgeting the program

Operating and promotional costs were studied and an adequate two-year budget was drawn up. Discussions between representatives of the several industry segments developed an equitable financial support pattern. On the basis of this apportionment, letters were sent to all local, interested companies.

Within certain ranges, the plans of the National Lighting Bureau are quite flexible as regards local arrangements. The training courses are designed for teaching by any individual with a confident, alert platform manner, and a working knowledge of the electrical industry. If the local light and power company has a staff of experienced trainers, their services may be utilized. Or an experienced lighting salesman may be enlisted as sales trainer, while a lighting


Your Electrical Contractor Has An Important Book For You...
about
Certified Lighting
for a Better America
FREE Booklet
FACTS
RELIGHTING PLANS Certified FREE
FACT BOOK on Certified Lighting FOR SCHOOLS
FACT BOOK on Certified Lighting FOR INDUSTRY
MAIL THIS COUPON TODAY!
FACT BOOK on... Certified Lighting for... OFFICE
FACT BOOK on... Certified Lighting for... INDUSTRY
and other MERCHA
NATIONAL LIGHTING BUREAU

Some very effective promotional material is now available from the National Lighting Bureau for use by local co-operative promotional groups. Shown here at upper left and in center are two of the several advertising mats; at upper right a series of jumbo postcards; and below the folders on lighting standards for specific occupancies.



Certificate of Conformance

to

Illumination Standards

published by

NATIONAL Lighting BUREAU

This certification form is now available from the National Lighting Bureau for use by local lighting promotion groups.

engineer, from utility or distributor's staff, may conduct the technical education. The emphasis is on the selection of the best facilities and personnel available; the carefully detailed Conference Leader's Manual and the Meeting Guides make this flexibility possible.

The training committee of the Rhode Island Lighting Bureau found one man who was eminently qualified to handle *both* the sales and the technical courses. Larry Cooke, New England district engineer for the Lamp Division of the General Electric Company is that man. His background includes training as an electrical engineer and twenty-five years experience as a lighting engineer for, successively, a utility, a fixture manufacturer and a lamp company. In addition, he has had extensive experience in teaching lighting at the college level and in conducting several lighting courses sponsored by the Illuminating Engineering Society.

Necessary classes

Arrangements were made with the University of Rhode Island for the classes to be conducted under the auspices of its Division of University Extension. A descriptive leaflet and registration blank was printed and mailed out with a covering letter to 500 contractors, and distributors, executives and employees in the Greater Providence Area.

Operating on the principal that something-for-nothing is usually considered worth just about what was paid for it, the training committee studied their operating costs and decided upon a $20 per student tuition fee. This makes the course completely self-liquidating, after paying all necessary costs immediately connected with the conduct of the classes.

The proper send-off

In order to swing the program into action with proper emphasis, a kick-off luncheon, September 22, drew together leaders of all segments of the local electrical industry to hear the details of the project. Despite the fact that every electrical contractor in the Providence area is overwhelmed with the work of replacing wiring that was ruined, August 31, by Hurricane Carol, luncheon attendance exceeded expectation and the hotel in which it was held made hurried arrangements to care for the overflow.

The luncheon was, of course, an opportunity for publicity in all local media, as well as in the pages of the electrical press. The promotion committee of the Rhode Island Lighting Bureau exploited it fully.

To build support for the selling activities of the local lighting salesman, and to engender demand for Certified Lighting, an advertising program was inaugurated in the local press on the Sunday following the kick-off luncheon. The advertising mats prepared and furnished by the National Lighting Bureau were used, with the insertion of local names.

There are five ads in the series, including a 1200-line initial ad headlined, "Proudly Your Electrical Industry Announces Certified Lighting"; an 800-line one themed, "Your Electrical Contractor Has an Important Book for You About Certified Lighting"; two 420-line ones headed, respectively, "Your Leading Electrical Contractors and Distributors, The Electrical League and Your Electric Utilities Proudly Recommend Certified Lighting," and "Now You Can Get Your Relighting Plan Certified to Meet National Standards"; and a 140-line ad themed, "For Your School, Store, Factory or Office, Ask Your Electrical Contractor to Submit a Relighting Plan Certified to Meet National Standards." Each of the ads urges the reader to write for the Fact Book that covers his type of occupancy. This provides a means of gathering names of potential customers.

Canvassing the area

Three electric light and power companies serve the area covered by the Rhode Island Lighting Bureau. They are the Narragansett Electric Company, the Blackstone Valley Gas and Electric Company and the Newport Electric Company. Each of these companies prepared lists of their industrial and commercial meters, divided into the four major categories of occupancy.

To these groups they sent jumbo postal cards that had been prepared specifically to promote Certified Lighting to owners of each type of occupancy. Each of the cards offered a free booklet which "brings you the facts about a new Certified Way to make sure your plant (or store, or school, or office) lighting meets modern standards." The recipient is encouraged to "mail the coupon today," for "one complimentary copy of the Fact Book on Certified Lighting for" his type of occupancy. These jumbo postal cards were prepared in bulk by the National Lighting Bureau and furnished to the local lighting bureau for surprinting with their own name.

Behind the local, "point-of-sale" operation of the Rhode Island Lighting Bureau is several years of planning, research and preparation by the Business Development Committee of the National Electrical Manufacturers Association. A study was conducted in an average American city by an independent market research organization, that had been retained by the Industrial and Commercial Lighting Equipment Section of NEMA.

Revelations of canvass

Actual light meter readings made on the premises of stores, schools, factories and offices showed that more than 85 per cent of the industrial and commercial lighting in that average American city was substandard. This meant that lighting was below the footcandle levels recommended by the Illuminating Engineering Society. In addition the study showed that most locations were far below the minimum recommendations. A third of the lighting was below World War I standards and a sixth

(*Continued on page* 118)

BEFORE—Lighting in the first floor lobby was glaring and spotty. Dense glass appeared bright against the dark finished beamed ceiling. This system of lighting produced an average of 8 footcandles on the check-in desk which is the central point in the lobby.

AFTER—New lighting in the first floor lobby consists of continuous rows of slimline, glass enclosed fixtures, each housing 4/96", 425 MA lamps. Fastened to the bottom side of the main cross beam, these lights now furnish about 45 footcandles on the desk.

BEFORE—A feature of the children's room of the Houston library is the ornate beamed ceiling. Fixtures fastened to these beams in the old lighting arrangement produced an abundance of glare and the intensity of illumination was rather spotty.

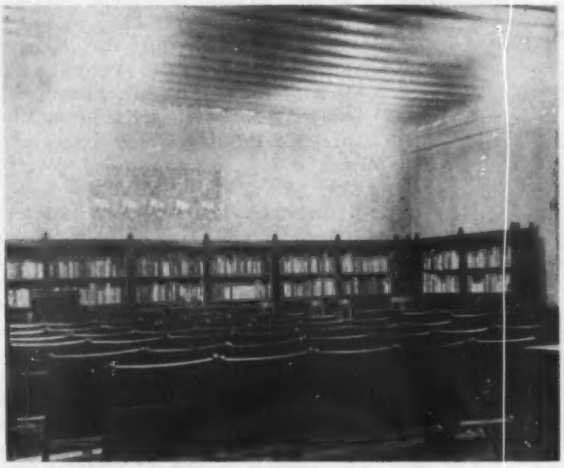
AFTER—New lighting in the children's room shows a fairly even light, making it possible to see many details as one looks across the room. Very broad fixtures of low brightness using 4/96" slimline lamps mounted about 13 feet from floor give about 55 footcandles.

Relighting Houston's main city library

by H. G. Hrivnatz
Lighting Engineer
Houston Lighting and Power Co.

BEFORE—The periodicals room, where a great amount of reading is done at the reading tables, was lighted in a very obsolete manner. The dark walls and ceiling and the bright lights attached to ceiling fans, produced only three to six footcandles on the tables.

AFTER—The periodicals room now boasts a lighting of 55 footcandles of even easy-to-read-by light. The obsolete fans and wall light brackets will eventually be removed when further improvement of the library building is made with air conditioning.



BEFORE—Lighting in the children's lecture room before the new installation is an example of the horrible contrast between the old light fixtures and the dark furnishings which result in an illumination throughout the room of only about four footcandles.

AFTER—Even lighting for the children's lecture room was achieved with the installation of a broad low brightness fixture. New fixture installation resulted in a gain in footcandles of illumination from the former number of four to a present 35.

◆ RELIGHTING of Houston's main city library presented many problems to lighting engineers studying the problem. The building is of Spanish renaissance architecture and is very ornate and picturesque. Some of the rooms are finished in dark colors and some with mahogany paneling, which is not conducive to designing an efficient lighting system.

The old system of lighting consisted of diffusion bowls which were widely spaced thus making the brightness ratios very great.

Architecturally speaking you can have the best looking building design which reflects the cloisters of the old ages, but if the general public is not able to see well with ease then the function of this building as a library does not render a good service. Reading is by far the visual task most commonly performed in a library.

The easy tasks for seeing are found in the children's room, where the books have large print on fairly good paper. A more severe visual task is found in the periodicals room where the grade of paper is poor and type sizes are generally small. The lighting in and around the stacks and the public book shelves must also be properly designed so that the public and the employees can quickly and accurately see the titles of the books.

Approximately a year ago Mrs. Harriet Reynolds, librarian for the City of Houston, asked that a study be made of the existing lighting conditions in all of the

(*Continued on page* 120)

Mr. Shenk's office at Florida Power headquarters is equipped for the demonstration of a variety of lighting patterns and treatments.

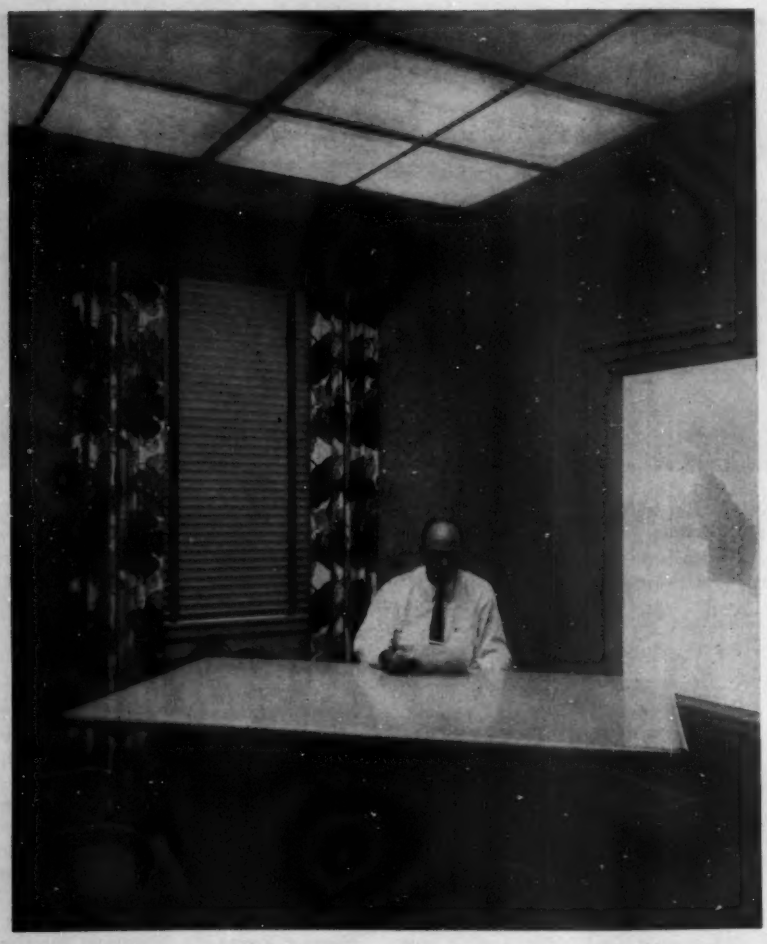
Effective lighting sales

by William B. Shenk

Director, Commercial and Industrial Development
Florida Power Corp.
St. Petersburg, Fla.

◆ THE MOST EFFECTIVE MEANS that Florida Power Corporation officials have found for selling good lighting is to have installations in their own company offices featuring the type of lighting which they want to sell to customers and their architects.

Carrying out the idea of making their offices into ideal lighting examples, all desks and tables have high reflectance linoleum tops, and colors have been used to provide the best in balanced brightness and comfort. Offices have been so equipped throughout the Florida Power service area to demonstrate proper lighting methods, in keeping with the company policy of proving the value of good lighting, as well as other electrical applications, before attempting to sell it to customers. And the Florida Power Corporation recommends this policy to any other company that is interested in the promotion of good lighting.



Office of W. J. Clapp, Florida Power Corporation president, features three levels of lighting up to 120 footcandles. This is used for demonstrations for lighting promotion. Illuminated map behind his desk is another example of the versatility which may be achieved with lighting.

The selling job

Perhaps the biggest problem which the lighting industry faces is to get the average electrical contractor and distributor to realize the tremendous potential that good lighting has for his business. Too many of them are inclined to take the path of least resistance and sell a customer a minimum installation. Invariably, this type of installation is unsatisfactory as it neither produces comfort nor value for better selling, seeing, or producing.

It is the Florida Power opinion that the contractor, especially, could multiply his volume of business and profit several times through the exercise of some good old-fashioned selling methods of quality installations. There are several contractors who have maintained their high standards and are doing as much business as they can possibly take care of.

The Florida Power Corporation's present program of commercial lighting promotion goes back exactly ten years when they established a separate Commercial Sales Department. From the outset, lighting was planned as the company's number one business activity.

First thing decided was that only the highest standards of

lighting practices would be followed in sales efforts. This meant that the company would not be a party to inferior lighting design and suffer any criticism or dissatisfaction from customers or their architects or engineers. This policy, in the company's opinion, is the wisest decision that was made and one which might be recommended to any company engaged in the sale of lighting.

Training salesmen

To furnish information on quality lighting obviously involved the training of qualified men in this field of work. Each of the Florida Power Corporation commercial sales force attended, at the very beginning of his training, one of the courses in fundamentals of illumination at the G-E Lighting Institute at Nela Park. Then he received several months of training with the company's own experienced staff of sales engineers. This training, coupled with their background of engineering in college, fitted them to give dependable information in the proper application of good lighting.

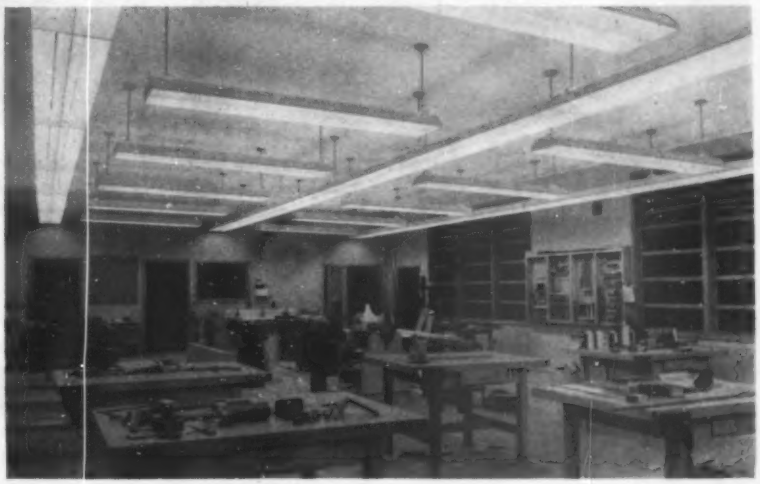
This policy has certainly proven itself and no project of any consequence has been undertaken in the entire service area that the company men have not been involved in doing some part of the planning if not all of it. Most of the architects now call Florida Power as soon as they are commissioned to undertake a project. They are furnished with complete details of the lighting and electrical systems of these projects. When consulting engineers are involved, these services are made available to them. All of the work is on a gratis basis and involves no obligation.

Fluorescents for schools

Indicative of the high standards of lighting being sold in the Florida Power area is school light-

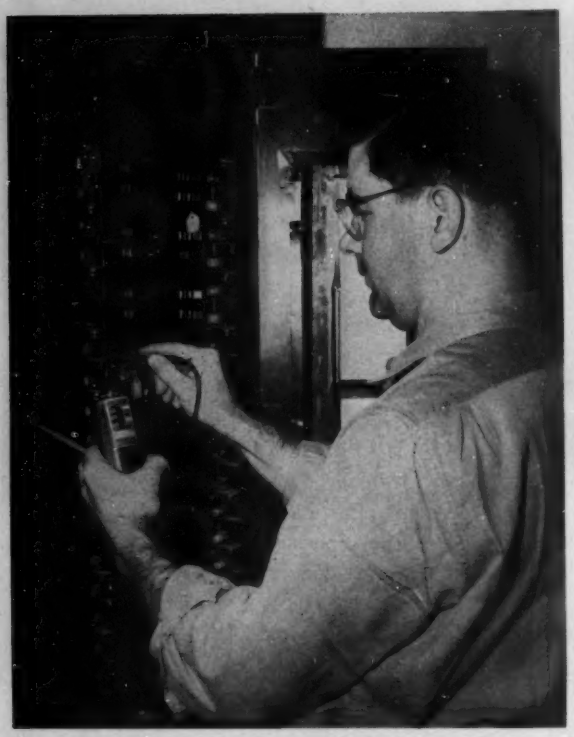
(*Continued on page* 121)

Viewed from the back of the Willingham Insurance office, lighting in the form of fluorescent troffers furnished 63 footcandles at work end of room.



In the Pinellas County school woodworking shop, a "grid system" of fluorescent industrial fixtures provide 150 footcandles of shadow-free illumination.

From a lighting standpoint, the auditorium of Pinellas County School could be used for study purposes. Switching and paired lighting control intensity.



A mechanic uses voltage tester equipped with retractable insulation on tips of prods, an important safety feature, in a part of the DuPont maintenance.

The job of changing fluorescent light tubes is simplified by providing electricians with "golf bag" carrier and hand truck with four-hour tube and accessory supplies.

Safety keynotes effective

◆ THE GENERAL SERVICES Department, as its name implies, is a staff department providing centralized services to other Du Pont departments and divisions. Among other things, it operates and maintains the Du Pont and Nemours buildings in Wilmington, Del., which house the company's main offices. The two buildings provide 860,000 sq. ft. of office space for some 5,600 employees.

Our approach to good service in lighting, electrical and elevator service for our office buildings tenants, is preventive maintenance. By careful inspection we try to detect troublesome spots and make corrections before breakdowns occur.

Strict safety program

We believe that exceptionally good housekeeping, even in elevator shafts, contributes to safety and efficiency. We underscore heavily a strict safety program including orderliness and cleanliness, knowing that good housekeeping pays off in lower maintenance costs and safety of employees, as well as in better tenant relations and employee morale.

In aiming at our objectives, everyone of us is sensitive to problems involving loss of time, waste motion and excessive costs. When someone voices a complaint, or a procedure is observed to be wasteful, costly or unsafe, we consolidate our thinking to devise a method to correct the condition.

Lamp replacement

Years ago, when we started the change-over from incandescent to fluorescent lighting, the problem of transporting four-foot tubes for replacement throughout the buildings, was met with cut-down corrugated tube cartons. However, the problem grew. Replacing 180 lamps and tubes a day became a full-time job for three men. The

Two clocks tell prospective passengers exactly how long they have to wait from the time they push the button until the car picks them up. Time is recorded.

Signal relay panel for combination passenger-freight elevators is part of signal system used when the elevator is in freight service.

electrical maintenance

by S. Herbert Longacre

Supervisor of Electrical and Elevator Maintenance
General Services Department, E. I. DuPont De Nemours and Co., Inc.
Wilmington, Del.

cut-down tube containers were soon outgrown and we quickly changed to custom made canvas carriers with pockets for starters.

These also became inadequate; the trips to the basement for lamps became too numerous, and a new transportation method had to be found. We solved the problem by designing an aluminum hand truck with compartments for carrying a four-hour supply of tubes, lamps, starters, fuses, etc., and a ladder. This enabled us to cut our personnel from three full-timers to two part-timers, saving about ten hours per day in labor and giving time for other chores. Custom made, the two hand trucks now in use were built at a cost of $200 each.

Simple expediencies

By using an employee's suggestion, we cut down on the innumerable four-foot climbs up and down the ladder for our many lamp replacements. Cutting two holes in the top step of the ladder to take the neck of an incandescent lamp, provides places for a new and a discarded lamp, leaving the worker's hands free to replace the lamp in a fixture safely. A long narrow canvas bag, hooked to the side of the ladder, holds four fluorescent tubes. Coded markings on the ends of the tubes, made with a china marking pencil, facilitate quick color selection. It now takes only one trip up the ladder on a replacement, instead of two or three.

Back in 1951, we were aware of considerable lost time by craftsmen waiting for freight elevators. To prove the extent of this lost time, we recorded by meter the waiting time of each corridor call over a two-week period on our most used freight elevator.

Calculating lost time

Considering all time in excess of two - and - one - half minutes as

wasted, at an average wage rate of $2.25 per hour, we found the loss to be approximately $2,500 a year. Our other two freight elevators were figured in proportion.

We solved this freight service problem by changing two passenger elevators (one in each building), to combination passenger and freight elevators. These cars now operate for passenger service only during the rush periods.

Our elevator group drew their own wiring diagram changes, designed and built new relay panels, and installed all wiring and key-operated corridor buttons. When changing over from one type of service to the other, the operator simply turns a key-operated switch in the car panel.

Switch of systems

When in passenger service, each combination car operates in the elevator bank with other signal controlled cars, answering calls from the regular corridor buttons. When in freight service, each car operates independently of the other cars in its bank, having its own signal system and flashlight annunciator. The operator answers calls as indicated.

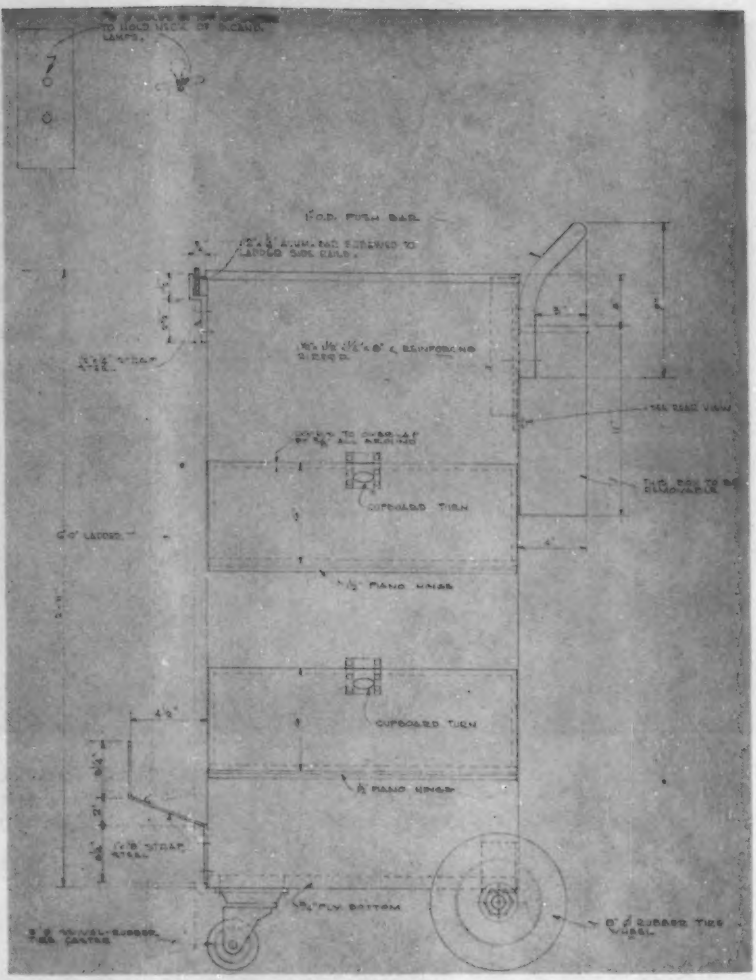
When a signal is turned in from any key-operated corridor button, a lighted indication will show "car is coming." Keys to signal the freight cars are furnished to craftsmen, mail delivery personnel, and outside contractors. The regular heavy freight elevators, being relieved of most light hauling, are now able to give faster service.

An effective savings of $6,000 to $7,000 a year is realized by elimination of much waiting time for three freight cars, with inestimable savings in tenant goodwill.

Elevator clocks

Some time ago, when we required a check on the validity of occasional tenant complaints of lengthy waits for passenger elevator service, we installed a set of two large-faced timing clocks on four different elevator banks, at the eighth floor. It works in this way: when a corridor button is pressed to call a car in the down direction, one clock face is lighted red, and the large sweep hand clocks off the seconds until the call is answered. The sweep hand then resets to zero.

The sequence is the same for an up signal, except that it activates the other clock which is lighted green. The passenger can thus see exactly how long he has to wait.



This is a side elevation of the cart used advantageously in relamping procedures in the DuPont General Services maintenance program.

The clocks are started and stopped automatically by the existing elevator signal system.

A meter in the elevator penthouse control room records a continuous chart showing the time of day, waiting time, and location of all signals. This furnishes an accurate reference in checking a complaint. All charts are scrutinized by elevator operating supervision the following day. Corrections in operation and scheduling are then made to improve elevator service.

Value of checkup

Tenant complaints were practically eliminated after this checkup system was put into operation. Imaginary long waits could be refuted by this accurate record. Operators constantly striving for a better record are on their toes, resulting in better service.

As those engaged in elevator maintenance well know, a problem entailing wear, lubrication, cleaning and replacement costs has centered about the common cast iron gib that is usually furnished as part of the original elevator guide shoes.

Replacement of gibs

Because of the need of constant lubrication of the guide rail, much labor is also required to periodically clean the shafts of dripping oil and subsequent fuzz, which soon becomes a fire hazard.

Our first step toward solving this problem was to replace the single cast iron gib with a three-piece wood gib made in our carpenter shop, using a wax preparation for lubrication. This corrected much of

(*Continued on page* 119)

"My most interesting lighting job"

The annual lighting competition conducted by the Illuminating Engineering Society at local and national levels under the title, "My Most Interesting Lighting Job," has brought out some unique solutions to difficult lighting problems. Two recent entries in the contest are reproduced here.

Unique stairs lighting

by L. Ralph Bush
Registered Electrical Engineer
Atlanta, Georgia

◆ IN 1953 the Druid Hills Golf Club selected David S. Cuttino and Associates, Architects, to design for them a golfers pavilion. The building as designed and built is a credit to their ability.

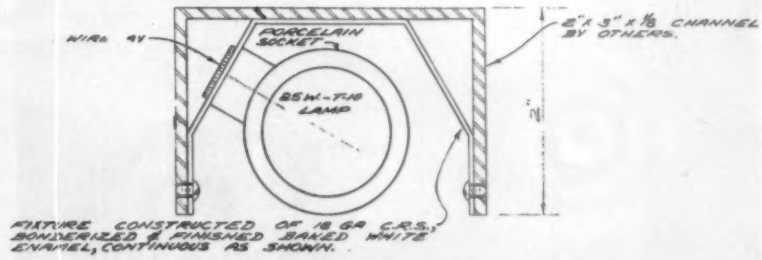
The most interesting part of the building, however, is the outside flight of steps, leading from the ground terrace up to the main floor porch. The steps are concrete supported by a single concrete beam in the center. There is no support at either end of the treads. This is an original design by the architects and has never been used before. This construction is clearly shown in the photograph.

After the architects had settled on the design, I was given the problem of providing light on the steps. This was an outside stair with no roof or canopy and due to the type of construction and location they could not be floodlighted from either the yard or from the building. What appears to be a stone pilaster in the photograph is in reality a large stone Pylon extending from the ground to well above the roof and has the Club emblem on the outside face. To attach any type of down lights or floodlights on this Pylon would have destroyed its beauty. Therefore, some other method of lighting had to be used.

As can be seen in the photograph the bannisters consist of 3 metal channels on each side. After studying this design I suggested that we use the bottom channel just above the steps as a place for the lights. The architects cooperated by making the channel large enough for a continuous reflector to be placed in it. I then laid out the lights with one 25 watt T-10 Tubler lamp over each step and over the landings. This lighting has been installed and the results are very good as seen in photograph.

There is approximately 40 footcandles of light on the ends of the steps and landing and approximately 25 footcandles in the center of the steps. This results in good, safe lighting, without glare and enhances the beauty of the architectural design.

To light this club building stairway without obstructing the view with poles, etc., the designer mounted an improvised fluorescent fixture inside the 2" by 3" channel irons that form the stairway bannisters. The details of the fixture and the wireway are shown in the drawing.


WIRE 4Y
PORCELAIN SOCKET
25W-T10 LAMP
2" x 3" x 1/8 CHANNEL BY OTHERS.
FIXTURE CONSTRUCTED OF 18 GA C.R.S., BONDERIZED & FINISHED BAKED WHITE ENAMEL, CONTINUOUS AS SHOWN.

Lighting a large television room

by S. J. Andre

Lighting Engineer
Georgia Power Company
Atlanta, Georgia

◆ A COMPLETE relighting of the Varsity, well known drive-in restaurant in Atlanta, involved a number of interesting lighting problems. Of particular interest, however, was the relighting of two television viewing rooms provided for the entertainment of Varsity customers.

The rooms are 48 feet long by 18 feet wide. One end wall consists of glass brick with southern exposure and is therefore exceedingly bright. The 27-inch television sets mounted in the wall at the opposite end of the rooms are covered with polaroid lenses during the daytime because of the high brightness of the glass brick wall.

Here are some of the factors that had to be given consideration in designing a lighting system for these rooms:

1. When viewed at night, with the removal of the polaroid lens, possible reflections or images of the lighting fixtures in the 27" television tube.

2. Seating arrangement and viewing angles had to be considered.

3. Contrast between the brightness of the picture tubes and the surrounding areas.

4. Possible annoying reflections in the window partitions dividing the television rooms.

5. An average maintained level of illumination had to be decided upon. (The "I.E.S. Handbook"—published in 1952—second edition, in no way covers an installation of this type—except for viewing television in the home).

The height of the ceiling was 11 feet 9 inches. The overhead structure, with the ceiling joists on 2 foot centers, permitted recessing to a depth up to 1 foot 6 inches. Considering all the factors mentioned, and having experienced the effect of looking around suspended fixtures, the solution was found in the use of Diffuse Alzak Parabolic Aluminum Troffers, with shielding angles of 42° crosswise and 22° lengthwise. Introduced also was a concave control lens, 150 watt incandescent unit—all the fixtures being of a low brightness nature. For this installation, a totally direct system, an average of 50 footcandles of light maintained was decided upon—the deciding factors being the per cent of light that would be reflected back to the ceiling and the walls from the floor and the furnishings.

Previous lighting of the TV room of the Varsity in Atlanta.

The accompanying photograph shows the results.

Notice there is no picture on the television tube. No stations were on the air when the pictures were taken. The doors of the console television sets were later pushed back into the recess—allowing the wall line to come up flush with the set.

An existing 12 circuit panel board serving the two rooms added to a very unique and flexible lighting system. The switching arrangement allows the owner to adjust his lighting levels to daytime operations and still maintain a well balanced and symmetrical lighting pattern throughout the rooms.

Brightness and footcandle readings were made with acceptable and pleasing results.

The outstanding features of the installation can be summarized as follows:

(*Continued on page* 120)

Night-time view of the relighted television room at Atlanta's Varsity drive-in restaurant. Switch arrangement permits balanced lighting at several different levels of lighting intensity. Brightness and intensity measurements were very satisfactory.

lion is enough!

...and so is 1 line of electrical wiring devices, if that line is LEVITON!

You don't need a lot of catalogs, brochures and a warehouse filled with a dozen different brands of wiring devices when you carry Leviton's *complete* line of electrical wiring devices. Nearly half a century of specialization has given this company manufacturing "know-how". Constant research for new devices and modification of older ones enables Leviton to bring you the best possible design and construction features—products of truly *superior* quality. And prices are kept down, allowing you a reasonable profit margin. Further, by maintaining this line, you can save on overhead, keep operating costs to an absolute minimum . . . in short, streamline your business!

Carry the most complete line of electrical wiring devices in the country—the Leviton line. For details and prices, phone or write today. Remember, it only takes *one* line to do the job and . . .

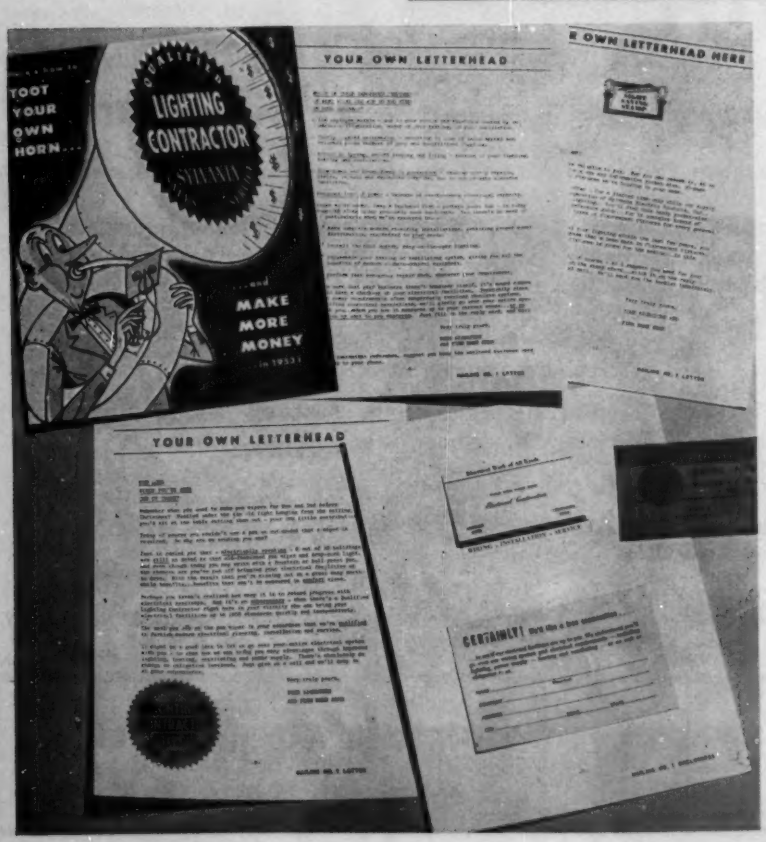
Your best jobs are done with . . . **LEVITON**

LEVITON MANUFACTURING COMPANY • BROOKLYN 22, N. Y.
Chicago, Los Angeles • Leviton (Canada) Limited, Montreal
For your wire needs, contact our subsidiary AMERICAN INSULATED WIRE CORPORATION

Contractors profit when manufacturers promote lighting

by T. G. Hearn
Sales Manager
Fixtures Division
Sylvania Electric Products, Inc.

Contractors who sign up for participation in this co-operative promotion of the contractor's services in the field of planned lighting are supplied with a variety of promotional advertising materials.



◆ FOUR YEARS AGO, Sylvania Electric Products, Inc., became the first in the industry to launch a promotional campaign aimed at selling the services of electrical contractors for planned lighting, installations of various kinds, as well as maintenance. So effective were these primary efforts that the program was repeated the following year. Today, it constitutes one of the company's major services to a large segment of contractor groups.

It wasn't long before Sylvania, the contractor and the contractor's customers all discovered that the project opened a two-way street in that it not only stimulated the contractor's business and built prestige for the company, but also created good will and a better public understanding of proper electrical installations.

Advertising support

Sylvania's current campaign, based on the highly successful 1953 program, is now being made available. Supported by a three-pronged advertising effort which includes a coast-to-coast television show, space in national magazines, plus

HERE'S REAL *Versatility* IN OUTDOOR LIGHTING CONTROL

THE FISHER-PIERCE SERIES 64400 PHOTOELECTRIC CONTROL

This control embodies the proven, dependable F-P basic circuit, in a simple, compact form. Mounting versatility of this unitized control is represented in the adaptions to various manufacturers' luminaires illustrated here, as well as ballast, pole top, cross arm, standard and other mountings.

Versatility of the Series 64400 Control is equalled by its economy. Low initial cost, savings in wiring, labor and materials, as well as low maintenance cost, make it economically practical to use one F-P 64400 Control per lamp.

Complete Descriptive Data on Request

FP

THE FISHER-PIERCE CO.

59 Pearl Street, So. Braintree, Boston 85, Mass.

EXPORT: PHILLIPS EXPORT CORP.
DIVISION OF NORTH AMERICAN PHILLIPS
100 E. 42ND STREET
NEW YORK 17, N. Y.

IN CANADA:
NORTHERN ELECTRIC
CO., Ltd.

the widespread use of direct mail, Sylvania's lighting contractor's program continues to feature the "Qualified Lighting Contractor" emblem and to stress the services of electrical contractors for all kinds of work in this highly important field. In fact, the emblem is the only piece in which Sylvania's name is mentioned.

Contractors who sign up for the program receive special campaign kits which include a direct mail promotion portfolio, emblem mats for their letterheads, stickers, billheads and publicity releases.

Allotment of cost

Direct mail was, and continues to be, one of the biggest factors in this campaign. Some 600 participating contractors have sent the company the names of approximately 100,000 customers and prospects. Sylvania in turn has sent six attractive mailings to these prospects for a total of more than 600,000 pieces — at a cost to the contractor of only two cents per mailing. This, we believe, is one of the most economically attractive aspects of the over-all program.

The company supplies all material, all envelopes, imprints all pieces and does all the mailing and addressing for the contractor. The average contractor who took advantage of the program spent approximately $6.50 in postage for the year, and reports indicate that the participants are keenly enthusiastic about the service because it helps bring them considerably more business at so little cost.

Success is evident

For example, some have even reported as much as $10,000 worth of new business at a cost of only $18! While presumably all of them benefit to an undetermined extent from advertising which publicizes their services, the contractors who tied in with this campaign, have direct evidence of it. Furthermore, the program has the enthusiastic support of NECA. Sylvania merely sells the services to the contractor —not the company's products.

With mailings steadily increasing, and being directed to architects and general contractors as well, the company firmly believes that it is serving a rising need throughout this rapidly growing field — especially in view of the current building boom — as demands for more adequate wiring increase proportionately with demands for electrical appliances.

Modern street lighting for Wilmington

◆ "THE BRIGHTEST CITY in North Carolina." That's the title claimed for Wilmington last spring when its modernized lighting system was energized. Ceremonies marking the initial illumination of a mercury vapor, 120/240-volt, multiple ballasted system were held during Wilmington's Azalea Festival.

Carolina Power and Light Company installed for the City of Wilmington 141 L-M Ovalite luminaires mounted on six-foot upsweep brackets. The modernized system is along 31 blocks of the city's commercial and business districts. Utilizing existing steel and wood poles formerly used for street railway service and for mounting old ornamental or pendant type luminaires, CP&L mounted the new luminaires at 26.5 feet to lamp centers on steel poles and at 28.5 feet to lamp centers on wood poles spaced an average of 115 feet apart.

The 400-watt 20000-lumen mercury vapor lamps in the Ovalites increased the lighting level more than fourfold. The old level provided by 10000-lumen incandescent lamps connected in a 7.5/20-ampere series circuit was 0.6 footcandle maximum.

Sell greater customer satisfaction with the

COMPLETE AMPLEX LINE

AMPLEX FLUORESCENT TUBES

There's an Amplex Fluorescent Tube of the right size and color for every type fixture. And the cathodes of Amplex Tubes are designed for high efficiency and long burning life... special coating methods assure even light output from end to end. Amplex Fluorescents make friends!

AMPLEX INCANDESCENT LAMPS

With Amplex you've a complete range of Incandescent specialty and general service lamps in every type and wattage. They are built to Amplex high quality standards and are proven sales leaders... setting new records of efficiency and economy for users everywhere.

AMPLEX REFLECTOR LAMPS

Here's the fastest-moving accent lighting line on the market! The inside surface of these lamps is *pure silver*. Their sealed-beam reflectors can't get dirty... always retain their brilliance. And Amplex Reflector Lamps come in a full range of wattages and bulb types... all quality-built for topmost dollar value.

AMPLEX INDUSTRIAL HI-BAY LAMPS

Amplex R-57 Lamp is designed for continuous maximum light output in high bays. Hermetically sealed *pure silver* reflector can't become soiled... auxiliary metal reflectors are not needed... grime and dust never obscure the bulbs' under surface from which light is projected. R-57 comes in 500 and 750 wattages.

AMPLEX SOUTHERN REPRESENTATIVES

IN FLORIDA: Jules J. Dreyfuss & Sons—Jules J. Dreyfuss—P. O. Box 187, Alapattah Station, Miami 42, Florida.

IN GEORGIA, NO. & SO. CAROLINA, ALABAMA, TENNESSE: Atlanta Office of Jules J. Dreyfuss & Sons—Jack Dreyfuss—324 Peters St., S. W., Atlanta, Georgia.

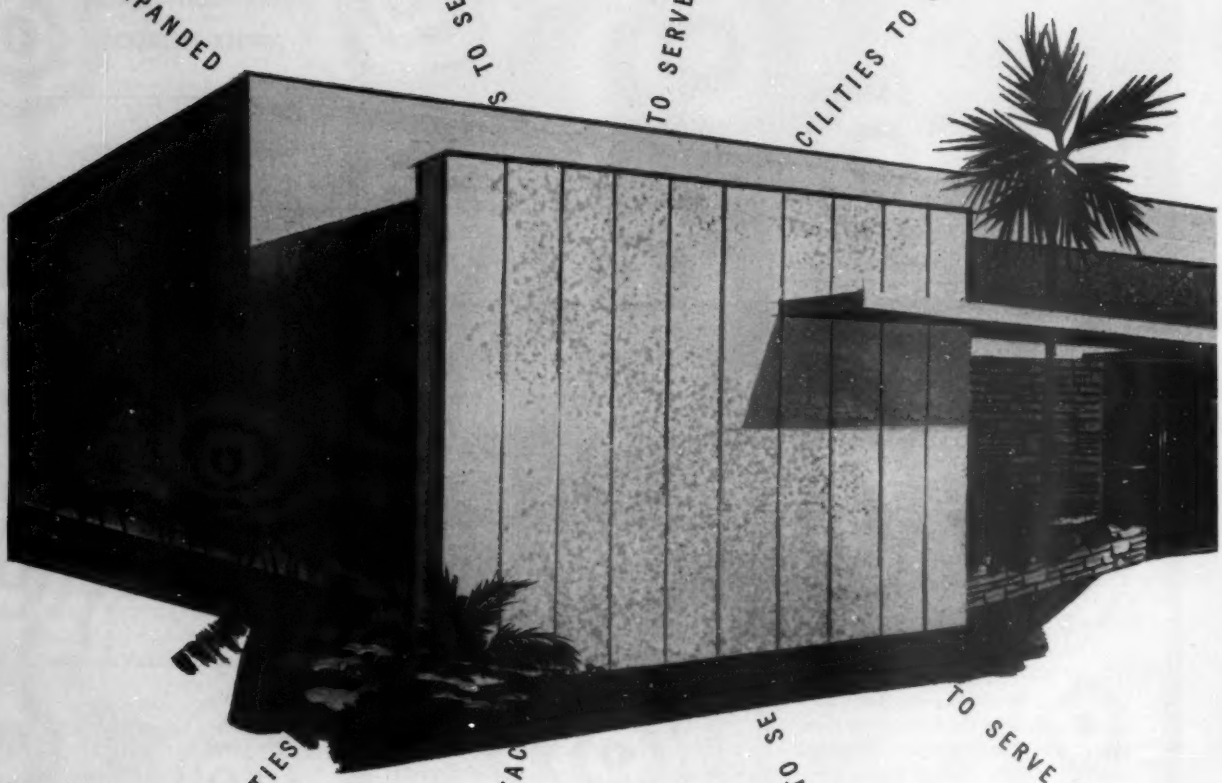
IN LOUISIANA, MISSISSIPPI, OKLAHOMA, ARKANSAS, TEXAS: Fain & Levin, 410 Notre Dame St., New Orleans, La.

IN VIRGINIA: Leo A. Roach, 4019 Clinton Ave., Richmond 22, Va.

AMPLEX

OTHER PROFIT-MAKING AMPLEX PRODUCTS

- Amplex Spots and Floods
- Amplex Par 38 Spots and Floods
- Amplex Weather-proof Lamps
- Amplex Swivelites
- Amplex Colorbeams
- Amplex Street Lighting & Traffic Signal Lamps
- Amplex Mercury Vapor Lamps
- Amplex "Hi-Hat" Recessed Fixtures
- Amplex Infra-Red Lamps

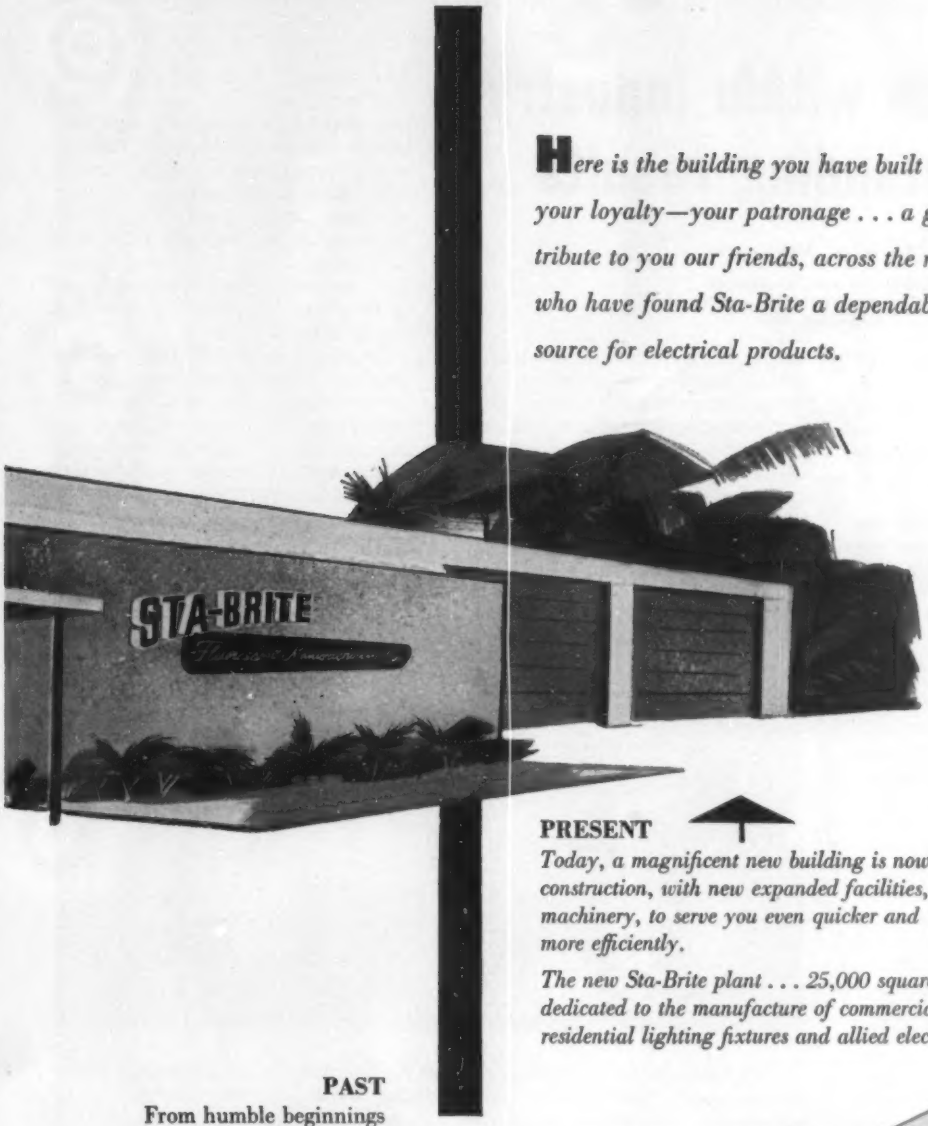


STA-BRITE

Fluorescent Manufacturing Company

Please address inquiries to P.O. Box 6352, Station B Miami, Florida

Here is the building you have built with your loyalty—your patronage . . . a graphic tribute to you our friends, across the nation who have found Sta-Brite a dependable source for electrical products.



PRESENT

Today, a magnificent new building is now under construction, with new expanded facilities, new machinery, to serve you even quicker and more efficiently.

The new Sta-Brite plant . . . 25,000 square feet dedicated to the manufacture of commercial and residential lighting fixtures and allied electrical products.

PAST

From humble beginnings at 226 N.W. 5th Street in 1947 . . . plant size just 1,500 square feet.

Then the big move to 325 N.W. 22nd Lane in 1950 and 2,500 square feet. Within three years, your belief in Sta-Brite products and service forced the opening of greater facilities, 15,000 square feet.

MIAMI, FLORIDA

Co-operation within industry brings outstanding results

by H. M. White

Lighting Service Department
Consolidated Gas, Electric Light, and Power Co.
Baltimore, Md.

◆ IN THE REALM of lighting promotion in the Baltimore area, close co-operation between the power company, electrical contractor, the supply house, and the manufacturer's representative has paid dividends.

The best lighting installations are made when each party in affeced branches of the lighting industry knows exactly what the job entails and when the installation is made so that everyone knows what each step is.

In one particular case in Baltimore this co-operative effort and its gratifying results are quite evident. The McCormick Company, in Baltimore, called a representative of the power company recently for consultation and advice on relighting the company's spice packing room. The power company man recommended the use of commercial type fluorescent equipment to give good visual environment in an area where industrial lighting equipment prevailed before. Louver bottom equipment was recommended with 40 per cent of the light directed to the ceiling. It was also recommended that the ceilings and walls be painted so that workers on the machines might enjoy the same quality of lighting as workers in the office.

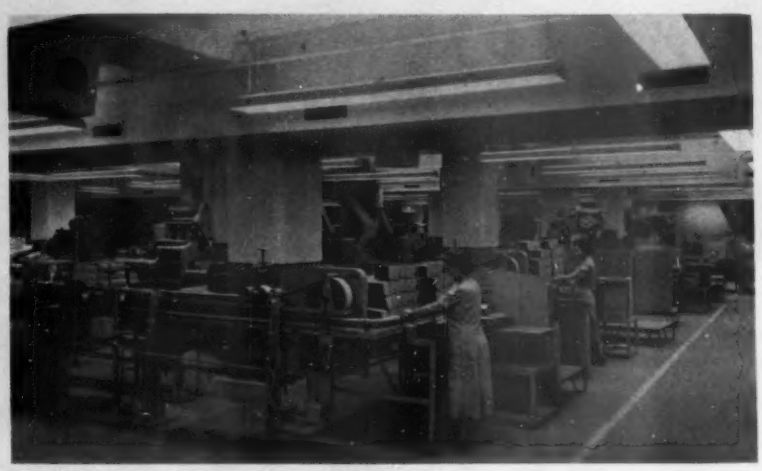
Co-operative conferences

After inquiring of the owner who he would like to have do his electrical work and from whom he was planning to purchase his equipment, the electrical contractor and the supply house representatives were called in and an explanation was given each of them of the proposed relighting plan.

When these people had been called in by the customer, they were fully acquainted with the intent of the job, and consequently were able to convince the customer that this was the type of lighting he should have. The order was given to make the installation; the customer, as well as the contractor, supply house representatives, and fixture manufacturer's representative were pleased with the finished job.

The McCormick Company installation is typical of the co-operative effort and its success in the Baltimore area. In this instance, the first call came through the power company. However, the call might have come as easily through the electrical contractor or the supply house. Here, again, one will call the other in and explain what he is proposing. If one has other views, they are stated and appraised, and in this way all parties arrive at a happy solution.

Representatives of the lighting industry in Baltimore have come to the conclusion that this closer co-operation between the allied fields in lighting unquestionably will bring better results and better lighting installations.



In relighting the spice packing room of McCormick Co., in Baltimore, lighting engineers recommended light painted walls and the substitution of commercial fluorescent equipment for industrial. Louver bottom fixtures were installed which direct 40 per cent of the light ceilingward.

Mississippi store owners buy modernization advantages

by H. S. Thomas

Division Sales Manager
Mississippi Power and Light Co.
Jackson, Miss.

◆ LIGHTING MODERNIZATION in the area being served electrically by the Mississippi Power and Light Co., Jackson, Miss., has been spurred on considerably by the company's continuing promotional activities coupled with several short concentrated sales campaigns such as the Edison Exposition celebrating "Light's Diamond Jubilee."

WHY YOUNGSTOWN BUCKEYE CONDUIT IS BETTER

Youngstown is the one manufacturer who makes rigid steel conduit from ore to finished product. This enables Youngstown to control the complete manufacturing process—your insurance that each length of "Buckeye" is made of top-grade steel.

Youngstown

QUALITY YOUNGSTOWN SERVICE

●On the job, electricians save time working with Youngstown Buckeye rigid steel conduit. That's because there are no hard spots to cause trouble. Whether threaded mechanically or by hand, Youngstown Buckeye assures you of clean, gripping threads, tight joints and perfect protection for wiring.

THE YOUNGSTOWN SHEET AND TUBE COMPANY *Manufacturers of Carbon, Alloy and Yoloy Steel*

General Offices: Youngstown, Ohio - Export Office: 500 Fifth Avenue, New York 36, N. Y.

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT - MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - BAR SHAPES - WIRE - HOT ROLLED RODS - COKE TIN PLATE - ELECTROLYTIC TIN PLATE - RAILROAD TRACK SPIKES

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company

One company launched the aluminum industry.

One company has 66 years of aluminum research and production experience.

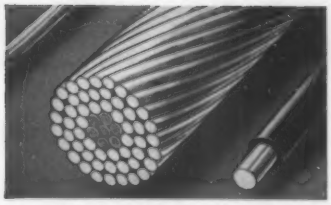
One company has 56 years of technical and field experience with aluminum conductors.

One company maintains the outstanding research, development, testing and production facilities in aluminum conductors.

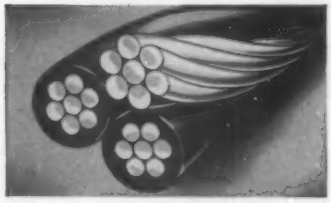
One company has developed and improved aluminum conductor alloys and aluminum conductor designs.

One company manufactures and stands behind a dependable line of both aluminum electrical conductors and accessories.

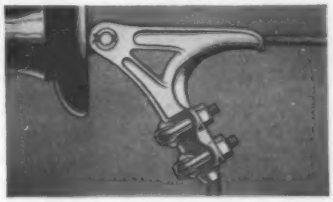
One company maintains a complete headquarters and field engineering staff to assist those who transmit and distribute electric energy.



ACSR and All-aluminum Wire and Cable



Covered Wire and Service Drop

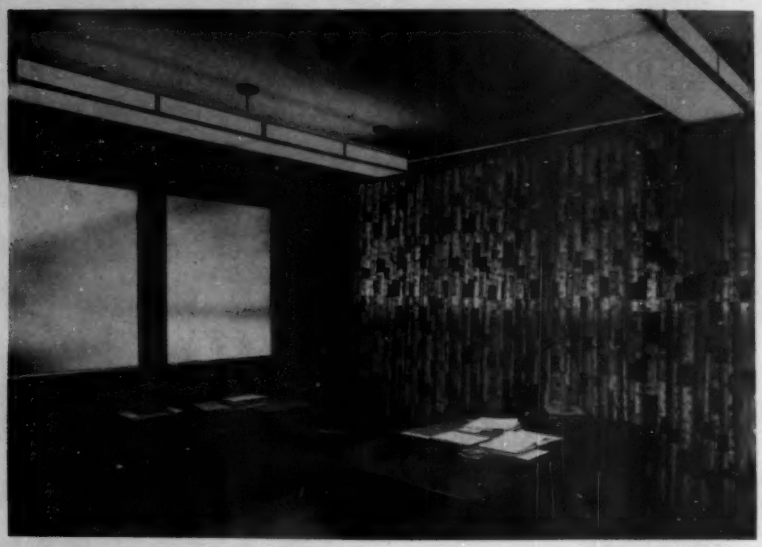


Accessories for All Conductors

company is ALCOA

ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA



Lighting in this small private office, Jackson, Miss., consists of four-lamp shielded fixtures two to the row. The resulting illumination is 80 footcandles.

Four lamp continuous louvered luminaires with a resulting general illumination of 110 footcandles have been utilized in the lighting of Patterson-Allen Drugstore, Jackson, Miss.

There has always been a need for better understanding of the basic principles involved in the design of quality lighting installations. For this reason, prior to the beginning of the Edison Exposition campaign, a meeting was held for all lighting allies in Jackson. At this meeting, the fundamentals of lighting were outlined and were presented with appropriate demonstration equipment. Also, at this meeting there were booths with typical types of office, school and store lighting demonstrations.

Following this meeting, the demonstration equipment and booths were used in the key towns throughout the territory. Separate shows on school lighting, office lighting and store lighting were conducted for a two-day period in each of these towns. These shows were directed to the users.

Quality and footcandles

One of the problems in lighting is that the acceptance of quality lighting has not kept pace with the acceptance of higher footcandles of lighting. It is believed that the demonstrations conducted helped materially in closing this gap. This, of course, is and will continue to be a big selling job.

The acceptance of higher levels of illumination and better quality of lighting, of course, continues to increase throughout the Jackson area. This is true of all types of applications. Over the past several years tremendous strides have been made in the field of school lighting with practically all new schools accepting the minimum IES standards, and many of the old schools rewiring and relighting to these standards.

There has been a marked trend toward more and more shopping centers in the larger towns of the Jackson area. Stores locating in these shopping centers have utilized lighting to the fullest extent to attract customers and help sell merchandise. Many of these stores are installing from 50 to over 100 footcandles in general lighting. It is certain that these installations will have a marked effect on the relighting of stores in the older shopping areas. The new centers are also employing floodlighting to attract attention and for parking ease and safety.

Jobs as examples

Throughout the area the acceptance of good office lighting has lagged behind the acceptance of lighting for merchandising. In the past year, however, marked improvements have been noted in the office lighting field. This trend has been brought about by the installation of good quality type lighting in a number of large and small offices. These pilot jobs have begun to spread and more of the office buildings will become conscious of the need for revamping their lighting to bring it up to modern accepted practices. Officials of the power company expect the next several years to produce marked improvement in office lighting throughout the area.

More and more sports field lighting jobs have been installed recently in the Mississippi area. Many of the older installations had become obsolete by new lighting standards, and were either completely relighted or revamped with the addition of power and equipment.

There are a large number of

Trapped by high Prices?

...Try Circle F!

Snap! . . . There's another fellow trapped by high costs! Easy to avoid. Just order Circle F! No high prices there – Just top quality Guaranteed Wiring Devices at an easy-on-the-pocket price. Send for our catalog No. 18 and see for yourself. Order Circle F . . . and save!

852-O

Bakelite Pull Receptacle. Combination 3¼" – 4". Three piece – Shadeholder Groove. Open double terminals for continuous wiring. 250W – 250V

202-O

Bakelite Keyless outlet box receptacle. Combination 3¼" – 4". Flush back – Open double terminals for continuous wiring – Shadeholder Groove 660W – 250V

212-O

Porcelain Keyless outlet box receptacle. Open terminals. Flush back with Shadeholder Groove. 660 watts-250 volts. Supplied with drain holes to meet R.E.A. specifications. For 3¼" or 4" box.

864-SO

Porcelain Pull Receptacle. Convenience outlet in base and Shadeholder Groove. 250 watts-250 volts. For 3¼" or 4" box. Available with pendant or insulator.

Circle F Mfg. Co.

TRENTON 4, N. J.

Saving You More Since 1904

50 YEARS

small towns and villages serviced by the Mississippi Power and Light Company. It has been found that the best way to get acceptance of good store lighting in these towns is to pick out the best prospects and concentrate on them in order to get pilot installations. This practice requires close co-operation between manufacturers, electrical contractors, local electricians, and the utility. The movement has shown a trend toward utilization of two-tube 96-inch fixtures mounted in continuous rows. Lighting in these small towns represents a challenge to the entire industry. Definite progress is being made, but there remains a lucrative market for all the industry.

The Mississippi Chapter of the Illuminating Engineering Society affords the opportunity for architects, design engineers, electrical distributors, electrical contractors, and utility people to meet together to discuss latest trends in lighting. This is a contributing factor toward the continuing increase in lighting standards throughout the service area.

Utility promotion efforts encourage planned lighting

by John D. Haverkamp

Commercial Supervisor
New Orleans Public Service, Inc.
New Orleans, La.

◆ ONE OF THE PRIME objectives of the Commercial Division of New Orleans Public Service, Inc., is to encourage commercial customers to realize and profit by the many advantages which planned lighting will bring.

Eighteen commercial field representatives insure that customers in all business categories are regularly kept informed of what planned lighting will do for them in increasing sales, improving employee morale, reducing eyestrain and increasing profits.

Supplementing the work of the field representatives is a Dealer Division which includes in its responsibilities, the regular contacting of architects, contractors and consulting engineers. New developments and good practice in planned lighting regularly are brought to the attention of that group.

Installation awards

Annually the company sponsors a planned lighting campaign for dealers and contractors. Bonuses and plaques are awarded for lighting installations which meet modern quantity and quality illumination standards. These campaigns are well received and supported, and it is planned to continue them in the future.

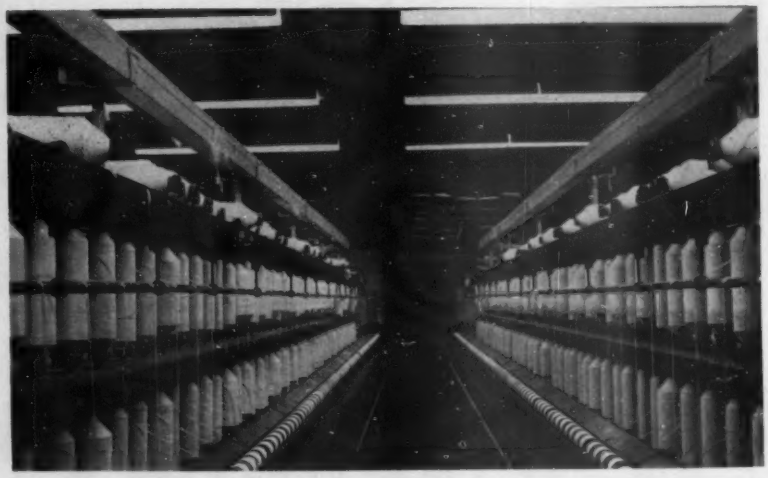
Annually, also, the company sponsors lighting meetings with architectural classes at a local university. These meetings are held in the company's auditorium and afford a means of showing future architects practical applications of good illumination.

About two years ago the company changed its method of presenting lighting recommendations to customers. A special oversize green folder with red and black printing is now used to enclose the actual layout with supporting color charts and promotional literature. The customer's name and address and the name of the company field representative are hand-printed on the face of the folder to give it an individualized character.

Customer presentation

The use of the folder has received excellent customer reaction. An additional successful use of the folder has been to use a sample with complete contents including a sample layout as part of the selling tools of the field representative. It enables the representative to graphically demonstrate the type of lighting service offered by the company. Resulting lighting layout requests have proven this type of presentation much superior to just a word picture.

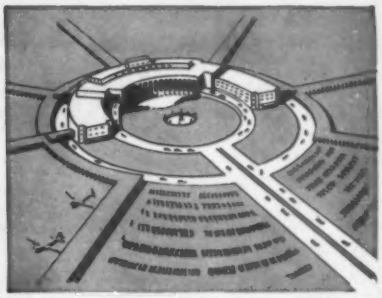
Part of the contents of the folder are locally prepared lighting data sheets. These sheets are confined to recent lighting installations within New Orleans. They include a photograph of the installation, a description of the installed lighting, and a testimonial from the customer stating his opinion of the



Industrial fluorescent reflectors each with two 75-watt, T-12, 425 MA Slimline lamps were installed 12 feet above the floor on ten by 12 foot spacing to provide good quality general lighting for the spinning department of this New Orleans mill. The arrangement has resulted in 30 foot-candles of maintained illumination. Fixtures are mounted high enough to reduce shadows from the spinning equipment to a minimum.

*Lighting that makes the nation's most important buildings come alive

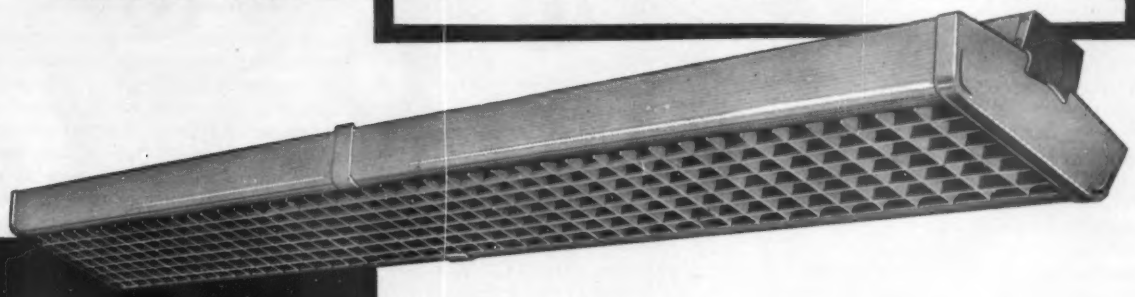
EMPIRE STATE BUILDING, N. Y. C.



IDLEWILD INTERNATIONAL AIRPORT, NEW YORK

CONSOLIDATED EDISON CO., N. Y. C.

DETROIT INSURANCE AGENCY, DETROIT, MICH.



SOME OF THE IMPORTANT ORGANIZATIONS NOW USING PHILITE SERIES 1118 or SERIES 1119 LUMINAIRES.

American Reinsurance Company
Committee for Free Europe
Continental Casualty Co.
City Hall Annex, Philadelphia
Loft Candy Shops
Mepham Junior High Schools
National Banks of Detroit
New England Telephone Co.
Norden Instrument Co.
Speed Products Corp.

When fine lighting is required for either original installations or for modernization programs, more often than not the nation's leading organizations select Ruby-Philite luminaires. And for good reason. Ruby-Philite luminaires are designed to provide high levels of illumination with maximum efficiency and comfort, engineered for lowest installation and maintenance costs, and constructed to withstand hard usage. **Write today for complete catalog data.**

*PHILITE SERIES 1118 & PHILITE SERIES 1119 • Commercial luminaires with illuminated metal or translucent plastic sides available with choice of metal louver, plastic louver, or extruded plastic shielding.

PHILITE

MEMBER N.E.M.A.

Ruby-Philite Corp.

32-02 QUEENS BLVD., LONG ISLAND CITY 1, N. Y.

value to him of the modern lighting in his place of business.

Twelve to sixteen of the data sheets are printed annually. In addition to inclusion in the lighting presentation folder they are used freely on any lighting call and are very useful in gaining customer interest. They also are distributed to architects and contractors.

In New Orleans there has been considerable lighting activity in practically all major types of occupancies. Stores, schools, offices, motels and service stations have been well represented in recent planned lighting installations.

Architectural conformity

In new construction there has been a decided tendency to design the lighting to conform to architectural features. However, most lighting installations still are the continuous row and the individual unit in fluorescent lighting.

The most common tube in use is the four-foot preheat lamp in cool white with the four-foot rapid start lamp increasing in popularity.

Incandescent lamps still are widely used, mainly for exterior and flood lighting and for show windows and interior spot lighting.

New Orleans is fortunate in having progressive contractors who specialize in maintenance of fluorescent lighting. For a set fee per tube per month the major maintenance contractor will undertake the complete servicing and cleaning of any fluorescent installation. His business is well into the hundreds of thousands of dollars annually and is still growing. He is expanding now to include rental of fluorescent fixtures and group replacement of lamps.

Lighting for the offices of New Orleans Roosevelt Corporation includes 108 40-watt fluorescent lamps installed above a plastic ceiling. Lamps are controlled to provide a choice of 30, 50, or 70 footcandles of illumination. Acoustic louvers add to working comfort.

Good use of floodlights in exterior night lighting

by Fred M. Niell

Lighting Engineer
Memphis Light, Gas and Water Division
Memphis, Tenn.

◆ OUTSTANDING PROGRESS has been made in Memphis in the preceding 12 months in the field of exterior lighting. The recent emphasis on parking facilities for shoppers' convenience has created a need for well illuminated parking lots.

Previously these lots were most usually lighted in a haphazard fashion with bare lamps, RLM dome units on adjacent buildings, or whatever was available in the way of equipment or locations. In many instances, floodlights of the wrong beam spread were used, and 25 per cent of the floodlights used were mounted upside down.

Today, in contrast, these areas are being lighted with enclosed type floodlights of appropriate beams, properly installed in a permanent, workmanlike manner. Island lights on steel standards are being used in considerable quantity. Mercury vapor street lighting luminaires have entered the field of area lighting, and their fresh, new appearance is attracting many more customers than bugs!

Illuminating landmarks

Another area of exterior lighting which has received emphasis in Memphis is apparent in the night lighting of several outstanding landmarks. These include several church spires on which the new 300PAR56 spot lamps seem to be the biggest choice because of their small size which improves their daytime appearance.

Memphis has gone "softball crazy" and the result has been the lighting of several softball fields. The night horizon in certain areas of the city simply glows from the usual 28 to 40 floodlights, open type, 1500 watts each. These floods are mounted on the customary wood poles.

No specific campaign in the lighting field has aroused this interest in exterior lighting. Instead, a continuous effort to design and install practical, efficient, and decorative exterior lighting in past years is beginning to show its effect. Older examples of good design are the three color animated Court Square Fountain, the dramatic "Memphis Belle" B-17 of World War II fame, Sears' Parking Lot, and many properly lighted recreation areas. These older examples have shown the using public how artificial illumination can extend the active hours until long past sunset and make landmarks even more prominent against the dark night sky.

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CFI-25 REFLECTOR SUPPORTS 358 POUNDS! Here's a rugged test for any reflector. Supported only at its extreme ends, the 8-foot CFI-25 reflector remains perfectly straight and rigid bearing the full weight of a 358-lb. man—no bend, no sag, no spread. That's because new ribbed construction reinforces lateral stability and a longitudinal "V" louver reinforces lengthwise rigidity (and also provides comfortable 30° cross-wise shielding). These super-rigid reflectors assure straight, true alignment of fixture runs.

See! Examine! Compare!

Complete details of the CFI-25 (left) are covered in Bulletin OD-626. The CFI-10 (right) is described in Bulletin OD-625. Write for either or both today! Day-Brite Lighting, Inc., 5435 Bulwer Ave., St. Louis 7, Mo. In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ontario.

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CALL OR WRITE YOUR NEAREST DAY-BRITE REPRESENTATIVE

Hi-hat downlights adapted to eating establishments

by G. O. Green

Commercial Sales Representative
Carolina Power and Light Co.
Raleigh, N. C.

◆ LIGHTING of Finch's Dining Room and Cafeteria in Raleigh, N. C., is one of the most unusual installations made in the Carolina Power and Light Company area recently.

Owner Finch did not have an architect, but followed the layout for the construction of the area, for his five way eating place—cafeteria, restaurant, fountain, take home, and curb service.

Customers enter through a small vestibule equipped with one Hi-hat downlight controlled by a mercury switch. Located in the offset ceiling in the passageway to the serving counter is a continuous row of two-tube 40-watt louvered fixtures equipped with deluxe warm tubes. The ceiling was offset so as to keep spilled light off the booths to provide ample light for the aisle to the serving counter.

Over the serving counter there are five 200-watt silver bowl lamp louvered fixtures each measuring 24 by 24 inches. These fixtures highlight food being served on the counters.

General lighting throughout the room is from hi-hat downlights spaced approximately six feet apart, and each lighted with a 150-watt floodlight controlled by a five kilowatt powerstat dimming device. All other lights can be cut down and the hi-hats dimmed to a glow with candles on the tables for parties and banquets. This provides a very favorable arrangement for the many groups who hold meetings there.

Wallpaper murals on two walls are lighted with a valance which gives up and down light for a warm atmosphere. The valance consists of a continuous row of 40-watt deluxe warm tubes.

Typical of the trend in the Raleigh, N. C., service area is this lighting job completed recently for Finch's Dining Room and Cafeteria.

Architects' attitude stimulates Tulsa trend

by M. J. Myers

Lighting Director
Public Service Company of Oklahoma
Tulsa, Okla.

◆ THE MOST IMPORTANT development affecting lighting in the Tulsa area has been the change in attitude of building designers. This innovation is quite simply summed up by John C. Penafeather, chief of electrical design for the architectural firm of Leon B. Senter and Associates. Mr. Penafeather says, "We have found that good lighting is not necessarily expensive lighting."

Mr. Penafeather cites examples of jobs handled by his own firm wherein lighting was considered as an important constituent of overall design in obtaining both the functional and the aesthetic qualities required. Lighting is no longer a stepchild with this organization.

Footcandle lift

Typical of the new Tulsa attitude toward lighting is the remodeled Sand Springs State Bank. The tellers cages are now lighted to an intensity of 100 footcandles by means of fluorescent troffers with Photo-Lite louvered glass. This system is supplemented by 24-inch by 24-inch plastic bottom downlight units each employing six 20-watt fluorescent lamps. The lobby area is quite economically handled by the plastic bottom downlights alone, where they give an average intensity of 15 footcandles. The open offices where personal interviews are conducted are more appropriately lighted by using two-lamp 40-watt plastic bottom units giving an intensity of 25 footcandles. The bookkeeping section, which is closed off from the main banking floor is treated as normal office lighting using a plastic shielded fluorescent unit delivering 85 footcandles of light.

The bank's lighting system is

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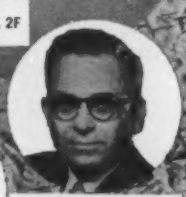

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planned to give an intensity commensurate with the seeing task. Lighting is used where it is needed and decorously eliminated when not required for seeing tasks, traffic control, or area beautification.

Another example of using good judgment in the lighting plan was in the remodeling of the Tulsa Municipal Theatre. Existing lighting within the auditorium was entirely adequate in regard to quantity. It was, however, extremely glaring and was particularly objectionable during intermission when turned on after the eyes were accustomed to darkness. The biggest disadvantage was in maintenance, because only the Fire Department had equipment capable of relamping these fixtures. In one simple change both the maintenance and the glare problems were eliminated.

By using the same outlets and installing a recessed fixture with a self contained reflector and silver bowl lamps that could be relamped from the attic, both problems were solved. The result is a comfortable auditorium lighting system free from glare and easily maintained.

Ramp lighting

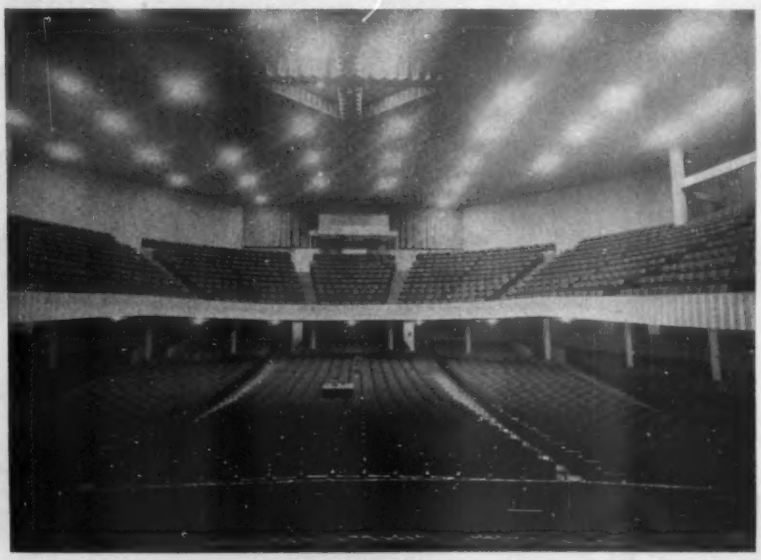
An interesting application of the R-40 lamp was also used in the Tulsa Theatre building on the ramps which give access to the various floor levels. These ramps wrap around the U-shaped auditorium and are lighted from the ceiling some fifty feet above ground level. A rather high intensity of light is required to encourage rapid movement in these passageways. By proper placement that took full advantage of the curvature and mounting height, a fixture containing eight R-40 lamps on a wheel shaped support gives adequate light without objectionable glare.

Again, in constructing a loading finger at the Tulsa Airport, lighting requirements were skillfully handled. A large area adjacent to the finger needed light for servicing and loading. The light source had to be located so that it would not blind the pilot at his 14-foot level. By placing open-type porcelain reflectors with aluminum inner reflectors and directing them downward from 30-foot poles, all requirements were satisfied. In lighting the walkway under the finger roof, a simple vaportight unit is used with bug repellent lamps. The result is a neat appearing job with plenty of light and yet only a nominal investment in lighting equipment.

Architects' approval

This new trend is a radical change from the days when architects insisted on special fixtures for every application. Today these same men consider lighting design a necessary part of every job. They approach their lighting problems with the same good sense that is used on other problems. They determine the requirements and then

A lighting level of 100 footcandles is maintained in the tellers' cages of the Sand Springs State Bank by means of fluorescent troffers with Photo-Lite louvered glass. This system is supplemented by 24 by 24-inch plastic bottom downlight units employing six 20-watt fluorescent lamps.



Lighting in the Tulsa Municipal Theatre was formerly poor because of maintenance and glare problems. By using the same outlets and installing recessed fixtures with a self contained reflector and silver bowl lamps that could be relamped from the attic, both problems were solved.

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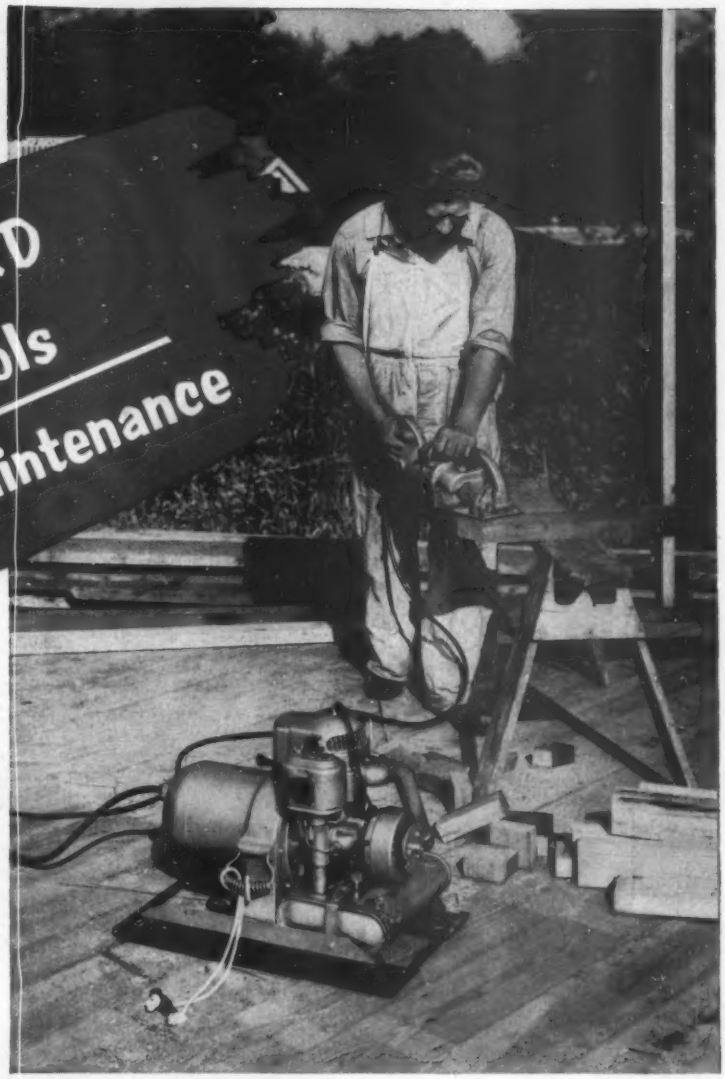

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satisfy those requirements from the materials available on the standard market. Unique arrangements are accomplished by means of a thorough knowledge of lighting equipment and ingenious arrangement of the lighting equipment with other building materials.

The Senter organization's approach is not unique with this one firm, but rather is typical of design practice among architects and engineers in the Tulsa area. It is more than a trend. It is a new development. It is a change that is producing good lighting, properly engineered, easy to maintain and much appreciated by the user.

Lighting opportunities in small town projects

by Paul R. Sheline

Lighting Engineer
Oklahoma Gas and Electric Co.
Oklahoma City, Okla.

◆ NEW CONSTRUCTION in the Oklahoma City area has kept lighting sales on the increase. Most of the new construction is caused by the trend of stores and offices to move away from the downtown area. New buildings are making use of a variety of types of lighting fixtures; however, most of them are of modern design that gives both high level and good quality lighting.

Stores and offices in downtown Oklahoma City have continued to remodel and modernize with some very outstanding projects. There is, undoubtedly, a definite trend toward lower ceilings and recessed lighting in this field of relighting. These installations include all types of recessed fixtures with louver, glass or plastic shields.

Remodeling surge

There has been a lot of activity in remodeling and relighting of schools throughout the Oklahoma company's entire service area. Several of these schools have installed well shielded fluorescent fixtures, with others now in the planning stage. This definitely is a new trend in the area. Higher first cost of fluorescent fixtures has in some cases meant the relighting would have to be spread over a three or four-year period.

Oklahoma Gas and Electric Company's commercial lighting promotional plans for this year are aimed primarily at the relighting market. In order to get the lighting story before as many people as possible with the available manpower, the company is taking the story to them through group meetings. Company personnel have talked to Engineers Clubs, service clubs, school boards, PTA groups, merchants, professional groups and electrical contractors during the year. The commercial sales personnel of the company are engaged in a relighting contest with a trip to Nela Park as the prize for those winners adding the most load.

During January and February, a lighting school, sponsored by the Electrical Contractors Association, was conducted in Oklahoma City. Twenty contractors and electricians completed the seven weeks' course.

Group study of problems

The Oklahoma City Illuminating Engineering Society Study Club was organized in the spring of 1953. Objective of this organization is to promote better lighting through education of all people connected with the lighting industry. These people include architects, contractors, distributors, manufacturers and users. The club is working toward becoming an Illuminating Engineering Society chapter soon.

Oklahoma Gas and Electric Company has witnessed the most noticeable increase in relighting activity in smaller towns throughout the service area. These are the towns with up to 5,000 population. Many of the group meetings have been held in these towns. Stores and offices in these areas are doing more modernization with relighting, too, with the addition of air conditioning, lowering of ceilings, etc. There is much potential relighting business in these smaller towns.

Substituting 50 footcandles of light for the building's original high ceilings and skylights has made the LaFlore County Gas Company office in Poteau, Okla., a pleasant and efficient place to work.

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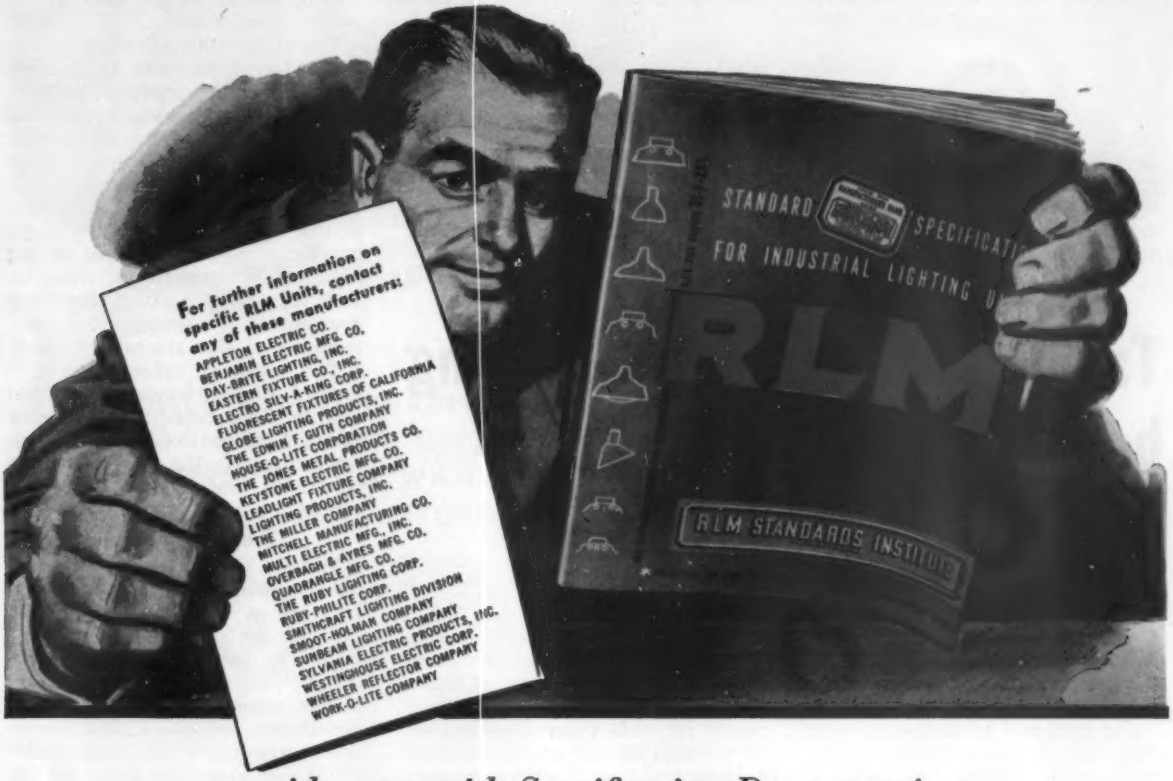

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An example of one of the jobs recently completed in a small Oklahoma community is the La-Flore County Gas Company office in Poteau, Okla., a town of 4,800 population. The building originally had a high ceiling with skylights and most of the south wall was taken up with window area. In the modernization job, the ceiling was lowered and much of the window area was bricked up. Walls, ceilings, floor and furniture were given light finishes, air conditioning and 50 footcandles of light were added, to create a much more comfortable and enjoyable place to conduct business.

Another type of lighting that seems to be increasing is that for the outdoor recreation areas. These include many football, baseball and softball fields, golf driving ranges, miniature golf courses, pitch and putt courses, plug casting clubs, swimming pools, auto race tracks, and lighted picnic areas.

Tampa customers are seeking better quality lighting

by James A. Banton
Illuminating Engineer
Tampa Electric Co.
Tampa, Fla.

◆ LIGHTING is following several definite trends in Tampa Electric Company territory. Most of them are highly gratifying.

The first, and probably the most gratifying, is the customers' desire for better lighting. Actually, a great number of the jobs the company is now doing are requested by the customer rather than being solicited by the company. Such jobs are well accepted and are installed in close accordance with the power company's recommendations. Much of the success in obtaining acceptance of these recommendations is explained by the excellent relations enjoyed by the Lighting Department of the Power company with electrical contractors, architects, professional engineers, and builders.

A second trend in the area is a continued trend toward starter-less gaseous tube lighting. The lower cost of rapid-start equipment (in many cases no higher than that of conventional fluorescent equipment) will do much to hasten this trend.

New gasoline service stations being built have excellent lighting, especially those of the larger oil companies.

Stadium job

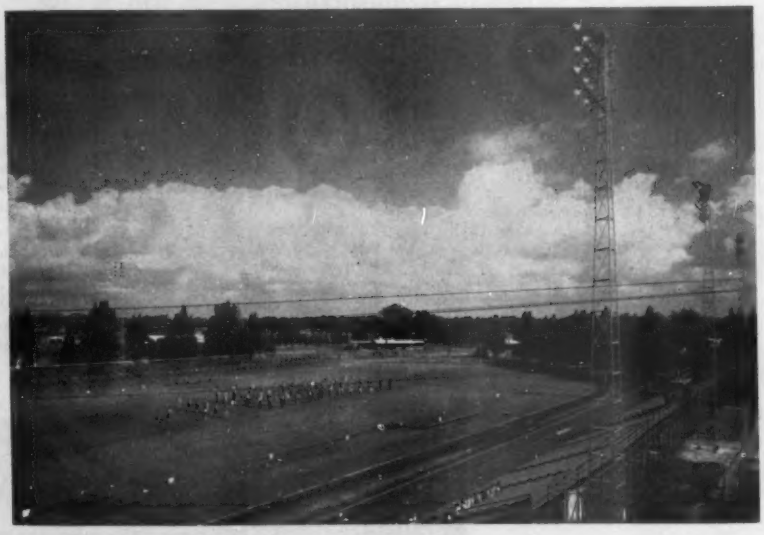
Outdoor recreational lighting continues on the uptrend. Of unusual interest is the Plant High School Dad's Club Stadium. This job was conceived and followed to completion by the dads of Plant High School students as a field which not only Plant High but all of the high schools and junior high schools could use. Lighting consists of 96 1500-watt GE L-69 floodlights mounted on six 80-foot Playtime towers. Towers provide for increasing at a later date the number of lights per tower to 24. A similar installation in Plant City, also sponsored by the Dad's Club, is now being made.

Use of bare lamp fluorescent fixtures in super markets, drug stores, and some variety stores is increasing in the Tampa area. Owners feel that the nature of the seeing task in these stores is such that a lower quality of lighting is acceptable. They cite lower cost equipment, ease of maintenance, slightly higher efficiency, and whether or not lighting people approve, come up with bare lamp lighting. The more discriminating stores, however, continue to use shielded fixtures.

The trend in office lighting is toward higher levels and better quality. Glass bottom jobs are now common where louvered bottoms were formerly the most advanced treatment that seemed to be accepted.

Trend to mercury

Tampa thinking toward street lighting is definitely toward mercury vapor lamps. More than 300 11,000 lumen units are now installed in Tampa and the relighting with mercury of literally miles of additional streets is planned. An installation of 47 11,000 lumen units was made in Auburndale about two years ago and even the most critical can find no fault with it. City fathers are high in their praise of the installation and many news stories and editorials have



Over-all view of Plant High School football field in Tampa, showing Playtime towers and L-69 floodlighting installation.

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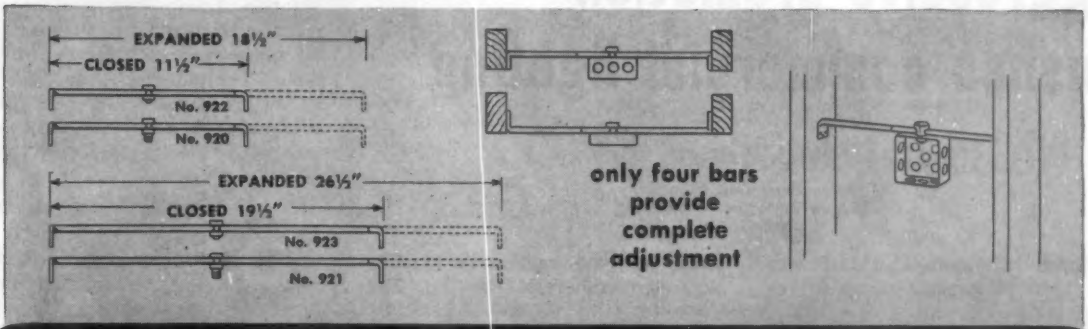

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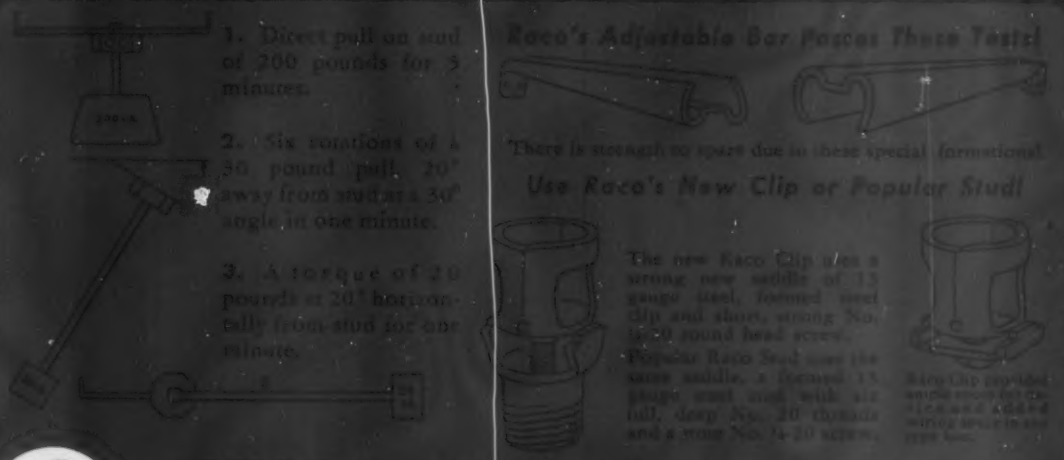
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praised it. Equipment has been ordered for an installation of 153 20,000 lumen units in Winter Haven. This is to be completed before the tourist season. An installation of 89 11,000 lumen units is being completed in Plant City this month.

All street lighting inquiries are for "those blue-looking lights," which can mean only one thing—mercury.

School lighting, unfortunately, has not kept pace in the Tampa area. Most classroom lighting now being installed consists of six 500-watt, three-ring incandescent fixtures, supplying approximately 20 footcandles instead of the 30 footcandles recommended by the National Education Association, the Illuminating Engineering Society, and others. Sometimes, the 500-watt lamps are replaced with 300-watt lamps, reducing illumination to approximately 12 footcandles. Buildings are "oriented" insofar as possible, but no further effort is made to protect pupils from the terrific glare of the sky and from adjoining building units.

Increased park wattage

Another indication of the uptrend in recreational lighting, and consequent evidence of increased acceptance of more and better lighting in Tampa, is the increased load at public parks and playgrounds. In 1950, 16 parks had lights of some sort. Today, 31 parks are lighted. This represents an increase in lighted parks of almost 100 per cent in four years time.

Lighting load in the parks in 1950 was 963,850 watts. This has ben increased by 683,804 watts in the four year period, to a total of 1,647,654 watts reported in June 1954, an increase of 71 per cent.

There are now five lighted baseball fields on Tampa Electric Company lines, and plans are underway for another baseball field, nine football fields, and innumerable softball fields and play courts of various kinds.

All in all, lighting is very much on the upgrade in the Tampa area, a distinct source of satisfaction to those who have "crusaded" through the years for better lighting.

Aggressive promotion pushes commercial lighting

by J. H. Keele

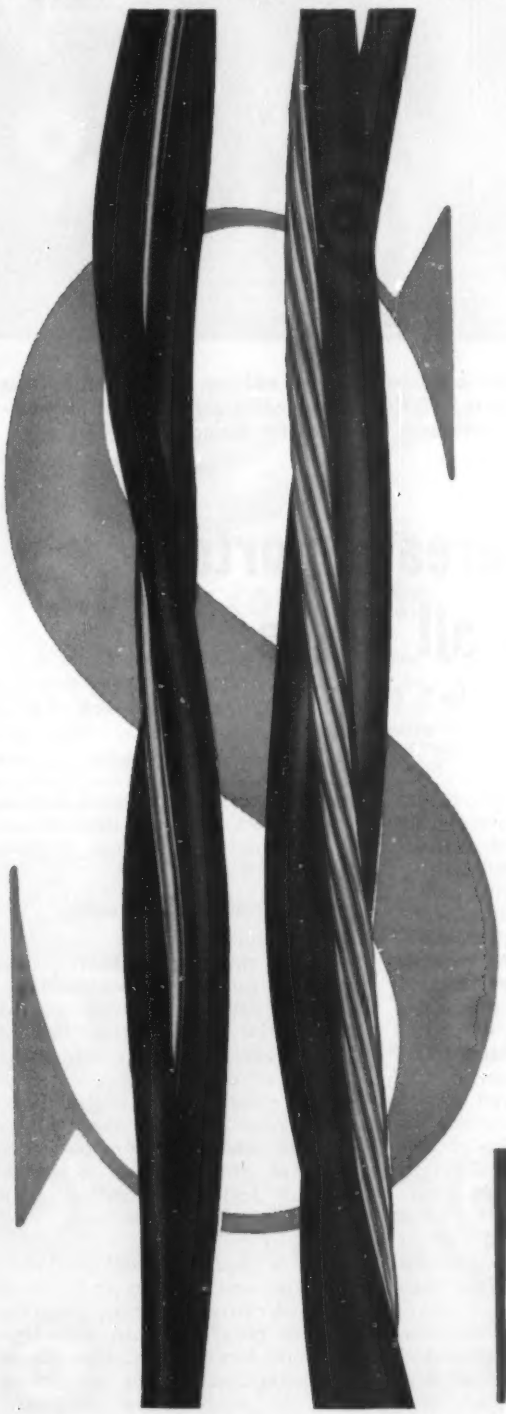
Sales Promotion Manager
Florida Power and Light Co.
Miami, Fla.

◆ AGAIN THIS YEAR, Florida Power and Light Company plans to resume its past aggressive promotion of commercial lighting. The company has already conducted, with the asistance of General Electric Lamp Department, refresher training meetings for the 70 sales representatives of the power company who will be engaged in commercial re-lighting activities. A series of follow-up workshop meetings is now being completed with the use of the G-E LaSalle Training courses, and similar materials.

The power company has also designed a portfolio entitled "Facts

Typical of the relighting jobs sold by Florida Power Company's aggressive commercial lighting promotion is the switch in Kasdin Drug Co., Miami, from old-style bare fluorescents to an up-to-date luminous ceiling.

Specify Southwire



TRIPLEX and Save

- SAVE ON FIRST COST
- SAVE ON INSTALLATION
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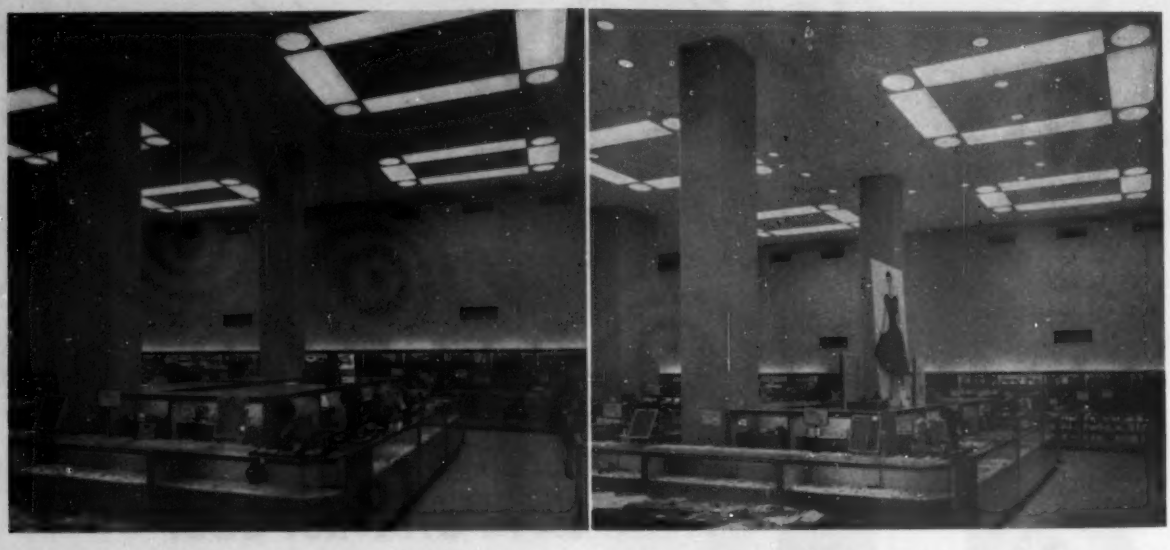
COPPER or ALUMINUM FROM STOCK

You know the advantages of Triplex service drop conductors—how they save up to 30% over conventional open wire service. But do you know about the extra advantages you get when you specify *Southwire Triplex*? You get extra quality, assured by extra care in manufacture; you get genuine Southwire Neoprene covering that assures long, trouble-free performance; immediate shipment from stock in quantities to suit your immediate needs—freeing you of costly inventory problems; full inventory of all standard sizes; and you get individual attention to your order, no matter how small or large it may be. Next time specify Southwire Triplex and see why it will pay you, like others, to use it exclusively.

Prompt Shipment by Our Own Trucks

Southwire Company

TELEPHONE 1500 — CARROLLTON, GEORGIA



Before and after photographs of the relighting job recently done by Richard's Department Store, in Miami, indicate that even though the lighting was already modern in appearance, the addition of recessed fixtures integrated with the other ceiling units brought illumination up to best standards for seeing and selling.

of Light," which will be used by commercial representatives to sell the advantages of planned lighting for seeing, selling, and saving. "Facts of Light," besides listing I.E.S. standards of footcandle levels for school and commercial installations, contains tables on spacing, mounting height, interior finishes and their relation to lighting, and suggestions for appearance and comfort. Inside the folio is a tablet of cross lined paper for use in figuring and laying out installations.

Lighting design kit

Several items are also presented with the portfolio to aid commercial representatives in the sale of lighting modernization. These include: a light meter, G-E fluorescent calculator, a ten-foot steel tape, layout solution sheets, a 12-inch ruler, and a list of electrical contractors participating in the lighting program.

All of the power company's promotional activities are closely tied in with electrical contractors, and all prospects developed are referred to the contractors. The complete promotional plan was recently presented to this group at a meeting attended by 78 Miami contractors, 48 of whom will participate in the program.

Nashville area reports activity in all fields

by S. B. LeCornu

Lighting Engineer
Electric Power Board
Nashville, Tenn.

◆ MORE AND MORE in recent months there have been activities particularly keyed to lighting modernization in industry and institutions, in schools and homes, and in over-all improved city lighting.

For example, over 1,200 classrooms in Nashville city schools have been re-lighted by standard commercial fluorescent units raising lighting levels from five footcandles to 35 footcandles. The school lighting fixtures are of the two-lamp 40 watt louvered bottom type, designed for continuous mounting or a combination of four feet, two-lamp units and eight feet, four-lamp units. Approximately 60 per cent of the total light output is downward and 40 per cent upward, with the over-all efficiency not less than 80 per cent of the bare lamps.

Re-lighting in local churches has been accomplished by supplementing existing layouts with flush lens units which highlight altars and pulpits in a non-theatrical way so as to effect adequate illumination without detracting from original design and atmosphere.

Productivity sought

In industrial areas including offices, re-lighting has been geared to a high quality of production and planned patterns of product flow. Residential lighting trends point toward effective light conditioning and new designs in decorative beauty ranging from simplicity to the ornate assuring good living through good lighting in both formal and informal types of homes. Valance and cove lighting, with neon tubing, enhance some new homes in the area.

One of the most recent local promotional activities in the city is the new street lighting program now in progress. Both mercury-type and incandescent-type lamps are being used in this re-lighting program which when completed

BE *Sure*

with

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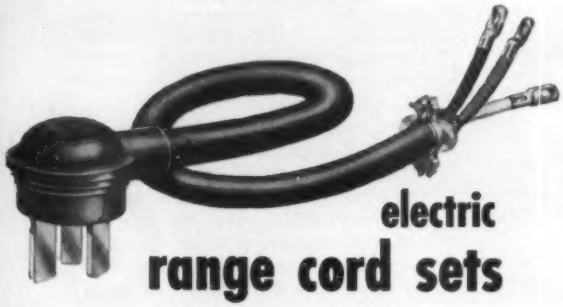
electric dryer cord sets

In great demand now! Series #5533, utilizing a new molded-on rubber plug which is equipped with "L" shaped grounding blades. Used primarily for application to 10/3 S cord or type SR range cable. Rated at 30 amperes, 250 volts. Approved by Underwriters' Laboratories. Each unit individually packed in a carton that serves as a shipping container.



electric range cord sets

3-, 4-, 5- and 6-ft., type SR rubber covered range cable. Two #6 and one #8 conductors for 50 amp.—or two #8 and one #10 conductors for 5 amp. service. CORNISH #500 molded-on rubber plug vulcanized to cable for long time water-repellent security. Equipped with suitable terminals and metal strain relief. U-L listed and approved for service at 250 volts. Individually packaged in a carton that serves as a shipping container.

heavy duty extension cord sets

For HOME, OFFICE and FACTORY use

for Washing Machines, Refrigerators, Fans, Portable Tools, Lawn Mowers, Hedge Trimmers, Business Machines, Small Motors

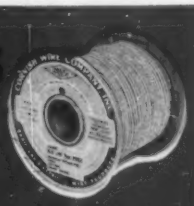
Push these rugged service units! Husky black rubber cords in standard lengths; integral molded-on components. Female connector has double contact blades, insuring perfect connection. Moisture-proof . . . strain-proof . . . Real GLUTTONS for PUNISHMENT!

CAT. NO.	LENGTH	CORD TYPE
3543	15 ft.	18/2 16/30SJ
3544	25 ft.	18/2 16/30SJ
3545	50 ft.	18/2 16/30SJ
3546	25 ft.	16/2 26/30SJ
3547	50 ft.	16/2 26/30SJ
3548	100 ft.	16/2 26/30SJ

Individually cartoned—Packed 20 to Standard Shipping Package

U-L Approved

CORDS



QUALITY-controlled wires that you KNOW will stand the gaff — on attractive spools in convenient lengths for fast and profitable over-the-counter-sales.

Also Neoprene-jacketed cords (types SVO, SJO and SOJ resistant to oil, heat and light

replacement cord sets

for Lamps, Radios, Small Appliances

6-, 8- and 10-ft., 18/2 type SP-1 brown cord, with molded-on plastic plug. Appliance end stripped ¾". Hanked, with UL Green Cord Set label applied.

for Vacuum Cleaners, Small Tools, Mixers, etc.

6-, 10- and 20-ft., 18/2 type SV black cord, with molded-on plug. Appliance end jacket removed 2"; conductors stripped 1". Hanked, with UL Green Cord Set label applied.

for Trouble Lights, Small Motors, Tools, etc.

6-, 10- and 20-ft., 18/2 16/30 SJ black cord with molded-on plug at one end. Appliance end jacket removed 2"; conductors stripped 1". Hanked, with UL Green Cord Set label applied.

ALSO ***Replacement units for Electric Irons and other Home and Office appliances***

Support your local
ADEQUATE WIRING BUREAU
Program . . .

CORNISH WIRE COMPANY, INC.

50 Church Street — **New York 7, N. Y.**

◆ATLANTA BOSTON BRIDGEPORT ◆CHARLOTTE ◆CHICAGO ◆CINCINNATI CLEVELAND ◆DALLAS DENVER DETROIT KANSAS CITY ◆LOS ANGELES ◆MINNEAPOLIS ◆PHILADELPHIA PITTSBURGH ◆ROCHESTER ◆ST. LOUIS ◆SAN FRANCISCO ◆SEATTLE

◆ Stock carried.

will cost approximately $1,500,000.

The mayor and the city council, backed by civic clubs and other city organizations together with efforts of the Tennessee Valley Section of the Illumination Engineering Society, have fostered good lighting trends throughout the city, especially the new street lighting program. Local merchants have been stimulated toward better store lighting, show window lighting, and better lighting in general by the street lighting program.

Grocery stores and super markets have been very active in the matter of improved lighting. The super markets are using the same layout patterns in general, with fixtures installed on the ceiling in continuous rows of from 10 feet to 12 feet centers and the open two-light fixtures.

In the field of sports the trend is toward night activities, as reflected by the areas illuminated for night games: 18 high school football stadiums, two college football stadiums and four baseball fields. Of this total, four illuminated areas were contracted this year.

Sales activity

Local contractors and wholesalers are actively promoting lighting modernization. Continuing sales efforts are in effect for the purpose of securing results; however, more technical knowledge of improved lighting practices is desirable.

The Tennessee Valley Section of IES has been very active in promoting better lighting for all purposes. Holding a number of meetings concerned with the problems of street lighting, with the mayor and members of his staff as invited guests, sufficient interest was aroused to stimulate the initiation of the new street lighting program of which this area is so proud. Similar meetings were held, with school building officials present, for the purpose of creating interest in the school lighting program.

In the wake of the improved street lighting program will follow over-all improvement of city lighting in stores, shops, factories and homes.

Modern lighting sold through good examples

by W. H. Sadler

Commercial Sales Engineer
Georgia Power and Light Co.
Valdosta, Ga.

◆ THE VALDOSTA AREA is well blessed with four fine architectural firms. Each of these firms has from two to four architects and all are busy turning out the plans for industries, commercial establishments, schools, and residences for a very rapidly growing Greogia area.

Since these architects turn out 90 per cent of all the plans in this area, and since they must have local engineering and supervision for all of their wiring and lighting plans, the Georgia Power and Light Company has developed a fine working agreement with these architects to assist them in all of their lighting and electric specifications so they can include these plans with their finished plans and specifications for the building.

Advisory capacity

The power company also acts as advisor to the architect and the owners in selecting the proper fixtures for the buildings to be sure the customer gets the proper intensity of light with a fixture that will look best for his building. Company personnel also act as advisor to the architect to answer questions from the contractors after work has begun on the buildings. This supervisory work saves the architect many hours of time in handling jobs and the contractors save time by having the power people available locally to answer his questions.

In 1951 the Georgia Power and Light Company built a modern type office building using a different style of fixture louver or lens in every office, yet meeting the needs of lighting in each area with a certain intensity of light. Since building this showplace for lighting in a very modern style building, the trend of most new construction has been along these modern lines and the intensities of light have raised throughout the area. Selling the idea of good light-

Recessed incandescents were used in the lighting of Stephenson's Jewelry Store, Valdosta, Ga., both in the window displays and sales area.

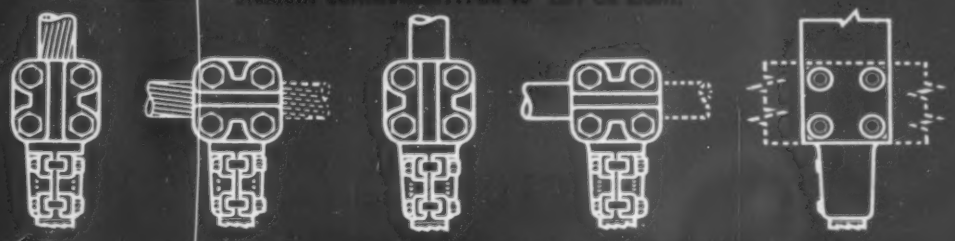
ABW DESIGN MEANS QUALITY plus STRENGTH in the RIGHT PLACES!

399*

CONNECTION COMBINATIONS

with these new ANDERSON UNIVERSAL STUD CONNECTORS... Types DSN & DSCT!

CABLE
TUBE
BAR



DSN . . .
5 stud sizes.
Cable sizes #6SOL through 2000 MCM.
½" IPS through 1½" IPS

DSCT . . .
7 stud sizes.
Cable sizes #2SOL through 800 MCM.
½" IPS through ¾" IPS.

HOW MANY CAN YOU COME UP WITH... WE STOPPED COUNTING AT 399!

These new, versatile, multi-purpose connectors are ruggedly designed for tough service conditions . . . *and for wider application in a greater range of conductor sizes . . . cable, tube or bar!* The square conductor clamping cap permits 90° rotation, and is specially designed for minimum and maximum size conductors. They are cast of high-strength electrical bronze. Silicon bronze hex head bolts, nuts and lockwashers are furnished.

FOR MORE COMPLETE INFORMATION consult your nearest ABW representative or contact our home office.

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Aluminum & Bronze POWER CONNECTORS • CLAMPS • FITTINGS • ACCESSORIES
for SUBSTATION • TRANSMISSION • DISTRIBUTION SYSTEMS *for over a Quarter Century*

ANDERSON BRASS WORKS, INC.

P. O. DRAWER 2151 • BIRMINGHAM 1, ALABAMA

ing has become much easier since we have set the pace for our customers.

Promotional mailings

Regularly all types of literature are mailed to those customers who have not modernized and make periodic contacts with them to talk about the advantages of a modern well-lighted store. These contacts have revealed that although merchants are in old buildings, all of them have dreams of the store they would like to have. The power company tries never to pressure a customer into anything and has built very close and friendly relations with them along the lines of "We cannot grow until the customer grows."

Owner of this Valdosta, Ga., sporting goods store reports that new lighting placed strategically along aisles of traffic, not only has fulfilled his dreams of a modern store, but has also increased his volume of business several times over former figures.

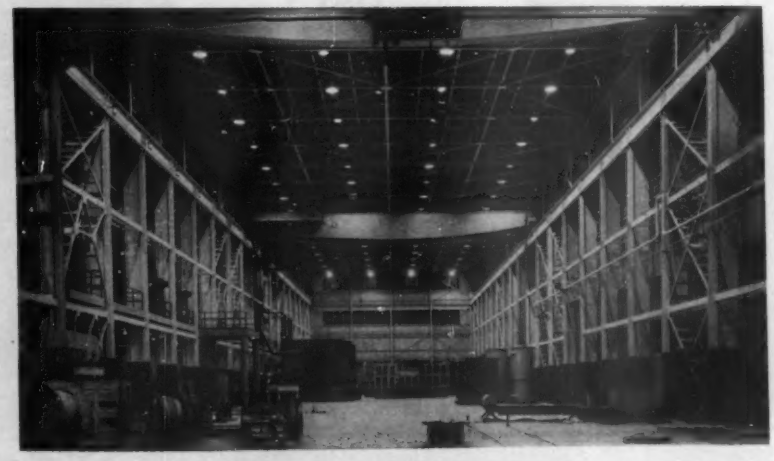
High-wattage reflectors featured in industry

by Roger W. Renkel
Union Electric Co. of Missouri
St. Louis, Missouri

◆ A TREND in the field of industrial lighting in the St. Louis area which has continued from previous years into the present is toward the general acceptance of high wattage reflector lamps for general illumination in industrial establishments.

For high bay lighting, the new "color corrected" mercury lamp (we prefer to call it "color improved"), has found a very good acceptance. An example of its use in the St. Louis area is the new assembly building of the Moloney Electric Co., manufacturers of electrical transformers. The mounting height of these units in the Moloney installation is 60 feet, spaced on 20 by 20-foot centers. The area shown in the accompanying photograph is 80 by 500 feet. The intensity at working level averages 50 footcandles, with H1000-C15 lamps.

Local activities in the promotion of better lighting installations, in the area serviced by Union Electric Company, include a recently held day-long "Industrial Productivity Forum" for some 300 of the company's larger industrial customers. The event was held in conjunction with General Electric Co. A major portion of the program for the day featured an illustrated address on better lighting as an answer to pro-

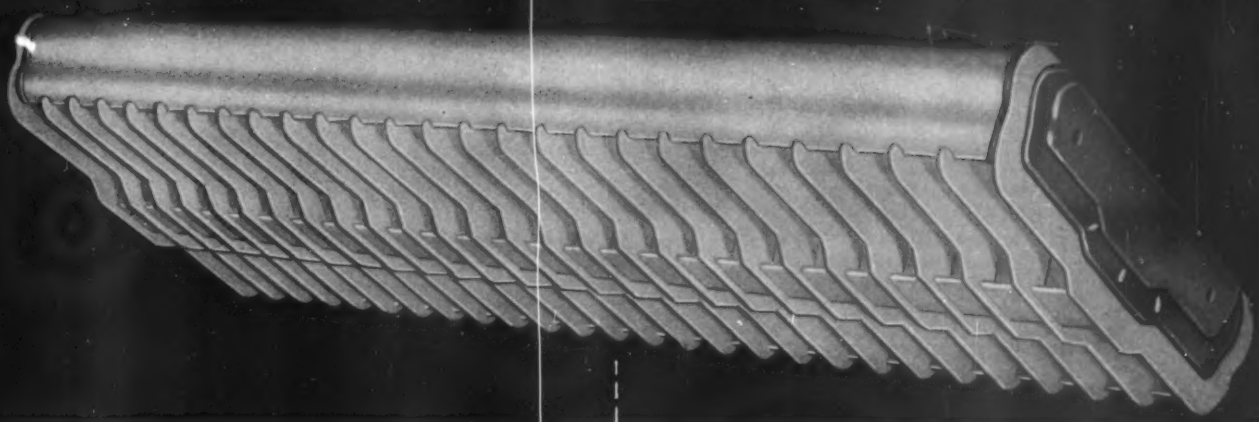


The St. Louis trend toward high wattage reflector lamps is exemplified in this new assembly building for a transformer manufacturer. Mounting height of the units is 60 feet, and they are spaced on 20 by 20-foot centers. Area illustrated is 80 by 500 feet. Intensity at working level averages 50 footcandles, with H1000-C15 lamps.

Flexibility PLUS

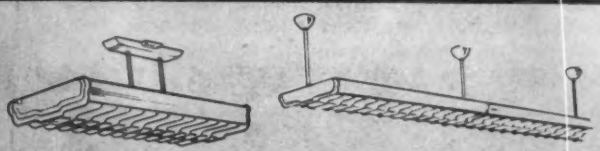
FOR TODAYS MOST EFFICIENT COMMERCIAL LIGHTING

Wheeler FLO-LINER

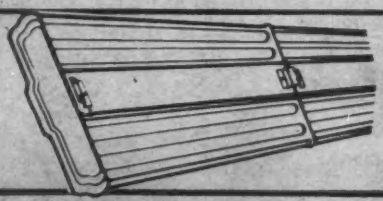


SHIELDING — All fixtures provide 45° crosswise shielding and are available with choice of 25° or 45° lengthwise shielding.

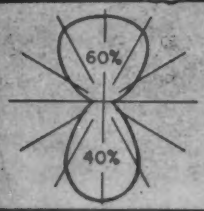
END CAPS — Satin finish aluminum end caps available — order separately.



PENDANT MOUNTING — Stem hanger assemblies are required. Single stem hangers used for continuous row mounting. Twin stem hangers for the mounting of individual 48″ lamp fixtures.



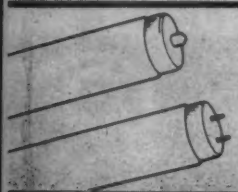
SURFACE MOUNTING — Units may be attached directly to the ceiling. Available as optional equipment are surface mounting plates and top reflectors.



OK

A quality fixture throughout!

85% EFFICIENCY — Translucent plastic side panels and center panel give low brightness for more comfortable seeing and high efficiency. Made of sturdy Polystyrene, they will not warp or discolor. For further seeing comfort 60% of the light is directed above the horizontal.



FIXTURES — 2 lamp and 4 lamp units available for 48 inch 38 watt and 96 inch 74 watt single pin lamps, as well as 48 inch 40 watt bi-pin lamps.

DISTRIBUTED EXCLUSIVELY THROUGH ELECTRICAL WHOLESALERS

Wheeler REFLECTOR COMPANY

275 CONGRESS STREET, BOSTON 10, MASS.

duction problems. The company plans to extend the forum into a series of similar such events for smaller industrial customers, where improved lighting techniques will again be emphasized.

Local section of the Illuminating Engineering Society is also doing an excellent job with architects, contractors and wholesalers.

Georgia department stores feature accent lighting

by Jack H. Murrah

Division Sales Supervisor
Georgia Power Co.
Atlanta, Ga.

◆ THE GENERAL TREND in the area serviced by the Georgia Power Company seems to be definitely toward large area, low-brightness sources. Not only in the form of luminous ceilings, but also in individual luminaires. Six-lamp fluorescent fixtures and 24-inch wide troffers are becoming increasingly popular. As for lamps, the future looks brightest for the 48-inch rapid-start fluorescent.

In department stores in the area, there has been a great emphasis on accent lighting to such a degree that in some cases general illumination is omitted entirely. It is believed that the dramatic effect from extreme contrasts sells more merchandise than do even diffuse conditions of illumination.

School standards

The greatest advances in the state are being made in the lighting of schools. In Georgia, the State Department of Education, is requiring that the I.E.S. standards of illumination and brightness be met erected with the aid of state funds.

The many new industrial plants in Georgia show that better quality illumination is being demanded by the manufacturer. Luminaires with an upward component of light are helping to accomplish this. Color-corrected mercury vapor lamps are being installed in high bay areas and slimline fluorescent lamps where lower mountings are possible. Interest has been shown by the industrial people in the new high-output fluorescent lamp, but no actual installations have been planned as of this date.

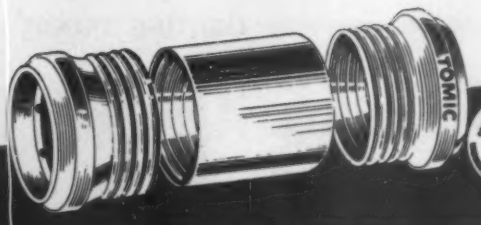
In service stations in Georgia the trend is toward fluorescent island lights in eight-foot lengths, mounted horizontally. For floodlighting, sealed reflector lamps in clusters are most popular with the oil companies.

Mercury vapor lamps are increasing in acceptance for street lighting in this area. Practically all of the recent installations of this nature use a luminaire with a horizontal mounting of the lamp arc. To the writer's knowledge, there are no color-corrected mercury street lights yet installed in the state.

Continuous runs of six fluorescent lamps in louvered luminaire in the Varsity, Atlanta drive-in restaurant, illustrates the trend toward large-area, low-brightness fixtures in the Georgia Power Company service area.

Muse's Six-Thirty Shop, Atlanta, is using accent lighting in cases and on featured displays. Dark ceilings emphasize highlights on merchandise.

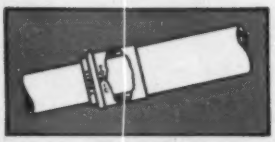
FACTS



PROVE TOMIC MOST VERSATILE THINWALL COUPLING OF THEM ALL!

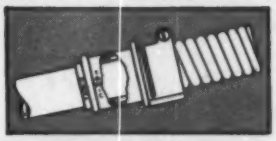
Pat. No. 2458276

IT'S A FACT—



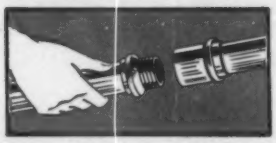
with TOMIC you can go from heavy pipe to Thinwall and vice versa without special fittings. Ideal for alteration work and additions.

IT'S A FACT—



with TOMIC you can go from Thinwall to Greenfield or ANY type cable. Ideal for heating installations and factory maintenance.

IT'S A FACT—



with TOMIC, all connections screw together. Will never shake loose.

IT'S A FACT—

with TOMIC, you can snap tubing into couplings in corners or close quarters.

COUPLINGS

No. 310—½" • No. 311—¾"
No. 312—1"

Do the Job Better!

WITH TOMIC THINWALL CONNECTORS!
NO CRIMP! NO SCREW! NO WRENCH!
JUST TAP OR PUSH IT ON!

Pre-flexed lock washer slips on tube with the greatest of ease—makes uniform, safe, permanent vibration-proof 6-point ground around entire tube. OK in concrete slabs. Perfect for cramped or corner locations. No. 10—½", No. 11—¾", No. 12—1"

Pat. No. 2458276

TOMIC SALES & ENGINEERING CO. Detroit, Michigan

SEE YOU AT NECA CONVENTION OCTOBER 26 - 30, "Old New Orleans Room, Hotel Jung, New Orleans

Luminous ceilings

by H. V. Oerting

Supervisor of Lighting
Potomac Electric Power Co.
Washington, D.C.

◆ A YEAR AGO in discussing lighting trends in Washington, the Nation's Capital, it was observed that while lighting systems had been growing in one direction, forming continuous lines of light, a definite trend was developing toward large area sources comprising most or all of the ceiling.

Now a year later finds luminous ceilings definitely established and enjoying widespread acceptance, particularly in offices, service establishments, and similar areas where comfort is of utmost importance. Together with sound and air conditioning, luminous ceilings provide the nearest approach to ideal conditions for indoor comfort.

In the Colonial Investment Building, a six-story structure in Washington, the lighting system was carefully planned to coordinate the three essentials to comfort, air —sound—and light conditioning. This building is an excellent example of the "comfort conditioning" that is taking place in the offices of the Nation's Capital.

Lighting in this Louisville church is provided from incandescent coves at the base of columns from 28 special cove fixtures with six 150-watt bulbs in each fixture. An upper cove uses two rows of 40-watt rapid start fluorescents on Curtis strip with a staggered arrangement to avoid shadow spaces. A vertical cove with 40-watt fluorescent lamps and Par 38 lamp provides lighting for the altar. These are spaced on each side of the altar area. Chandeliers are used only for decorative purposes.

School board rules increase in footcandle requirements

Lighting system for Colonial Investment Building, six-story Washington building, was planned to co-ordinate air, sound, and light conditioning — exemplifies trend in the Nation's Capital.

by E. J. Good

General Sales Manager
Louisville Gas and Electric Co.
Louisville, Ky.

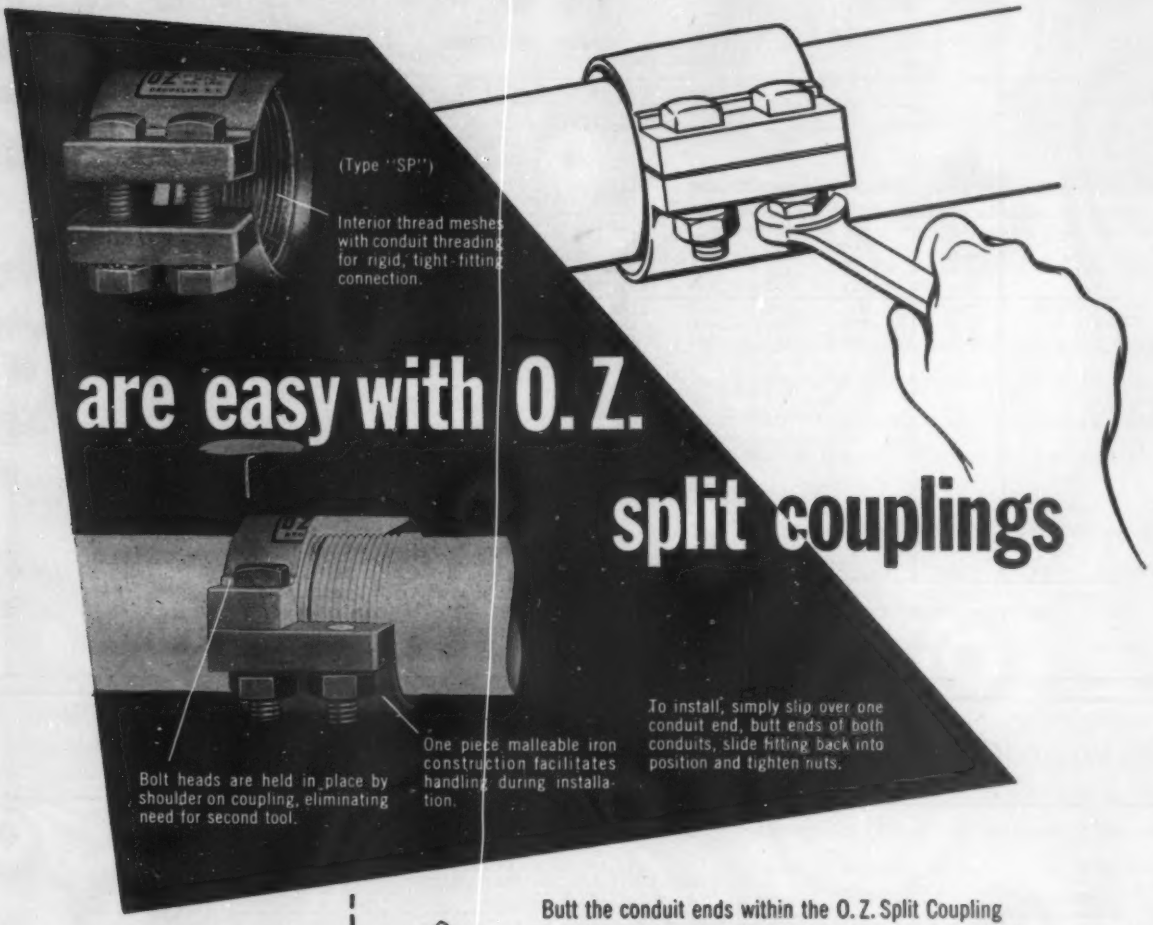
◆ A GREAT DEAL of the lighting activity in the Louisville area is in the school, commercial and church lighting field. Adoption by the Louisville Board of Education of the minimum standard of 30 footcandles of fluorescent lighting in all of the old and new school buildings has brought about a number of lighting installations in private and parochial schools.

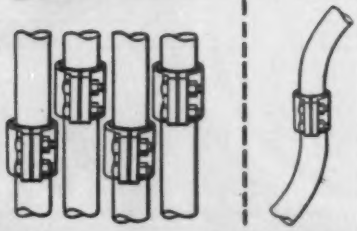
The trend in commercial lighting installations is toward the use of larger elements of built-in lights particularly in lighting areas of four by four feet or larger. The use of complete louvered plastic or glass ceilings, however, does not seem to have become popular in the area, although a few isolated jobs of this kind have been sold.

There has been quite a bit of activity in the lighting of both old

(*Continued on page* 119)

*"TOUGH" conduit coupling jobs


(Type "SP")
Interior thread meshes with conduit threading for rigid, tight-fitting connection.
are easy with O. Z.
split couplings
To install, simply slip over one conduit end, butt ends of both conduits, slide fitting back into position and tighten nuts.
One piece malleable iron construction facilitates handling during installation.
Bolt heads are held in place by shoulder on coupling, eliminating need for second tool.



Butt the conduit ends within the O. Z. Split Coupling —tighten two nuts with an ordinary open-end wrench and presto . . . you have a permanent, close-fitting, rigid connection.

Drastically reduced installation costs, plus initial savings of as much as 50% in larger sizes, over similar competitive fittings, are just two of the many reasons why you should specify O. Z. Split Couplings for your difficult conduit coupling jobs.

Call your local O. Z. distributor . . . he is ready to make immediate delivery from stock on sizes from ½" to 5".

* **"Tough"** — (Where ordinary couplings can't be installed). Are clearances close — near floor, wall, ceiling or other obstructions? Can conduits be turned due to bends? Is space or accessibility a factor? Just install an O. Z. Type "SP" Split Coupling.

ELECTRICAL MANUFACTURING CO., INC.

262 BOND ST. • BROOKLYN 17, N.Y.

CAST IRON BOXES • SOLDERLESS CONNECTORS
CABLE TERMINATORS • GROUNDING DEVICES
POWER CONNECTORS • CONDUIT FITTINGS

CABLE NON-METALIC SHEATHED (BUILDING)
WOOD RESIDENCES (REWORK)

NO CONDR'S. SIZE	HRS."C"	LABOR COST INSTALLED PER FT. AT FOLLOWING RATES										
		$1.25	$1.50	$1.75	$2.00	$2.25	$2.50	$2.75	$3.00	$3.25	$3.50	$3.75
2/14	5.7	.071	.086	.10	.114	.128	.143	.157	.171	.185	.20	.214
3/14	6.0	.075	.09	.105	.12	.135	.15	.165	.18	.195	.21	.225
4/14	6.5	.081	.098	.114	.13	.146	.163	.179	.195	.211	.228	.244
2/12	5.8	.073	.087	.102	.116	.131	.145	.16	.174	.189	.203	.218
3/12	6.3	.079	.095	.11	.126	.142	.158	.173	.189	.205	.221	.236
4/12	7.2	.09	.108	.126	.144	.162	.18	.198	.216	.234	.252	.27
2/10	6.0	.075	.09	.105	.12	.135	.15	.165	.18	.195	.21	.225
3/10	6.6	.083	.099	.116	.132	.149	.165	.182	.198	.215	.231	.248
4/10	7.4	.093	.111	.13	.148	.167	.185	.204	.222	.241	.259	.278
2/8	6.5	.081	.098	.114	.13	.146	.163	.179	.195	.211	.228	.244
3/8	7.2	.09	.108	.126	.144	.162	.18	.198	.216	.234	.252	.27
2/6	6.2	.078	.093	.109	.124	.14	.155	.171	.186	.202	.217	.233
3/6	8.7	.109	.131	.152	.174	.196	.218	.239	.261	.283	.305	.326

LABOR: INCLUDES DRILLING, CUTTING, INSTALLATION, STRAPPING AND CONNECTING TO BOXES (NO TAPS)
ADD FOR OPENING UP JOB.

CONCEALED

CONDUIT THINWALL NEW RESIDENCES
WOOD FRAME BUILDINGS

COND. SIZE	HRS."C"	LABOR COST INSTALLED PER FT. AT FOLLOWING RATES										
		$1.25	$1.50	$1.75	$2.00	$2.25	$2.50	$2.75	$3.00	$3.25	$3.50	$3.75
1/2"	4.6	.0575	.069	.0805	.092	.1035	.115	.1265	.138	.1495	.161	.1725
3/4"	5.0	.0625	.075	.0875	.10	.1125	.125	.1375	.15	.1625	.175	.1875
1"	5.9	.0738	.0885	.1033	.118	.1328	.1475	.1623	.177	.1918	.2065	.2213
1 1/4"	7.9	.0988	.1185	.1383	.158	.1778	.1975	.2173	.237	.2568	.2765	.2963
1 1/2"	9.9	.1238	.1485	.1733	.198	.2228	.2475	.2723	.297	.3218	.3465	.3713
2"	12.5	.1563	.1875	.2188	.25	.2813	.3125	.3438	.375	.4063	.4375	.4688

BRICK AND WOOD BUILDINGS

1/2"	4.9	.0613	.0735	.0858	.098	.1103	.1225	.1348	.147	.1593	.1715	.1838
3/4"	5.3	.0663	.0795	.0928	.106	.1193	.1325	.1458	.159	.1723	.1855	.1988
1"	6.2	.0775	.093	.1085	.124	.1395	.155	.1705	.186	.2015	.217	.2325
1 1/4"	8.3	.1038	.1245	.1453	.166	.1868	.2075	.2283	.249	.2698	.2905	.3113
1 1/2"	10.4	.13	.156	.182	.208	.234	.26	.286	.312	.338	.364	.39
2"	13.1	.1638	.1965	.2293	.262	.2948	.3275	.3603	.393	.4258	.4585	.4913

LABOR: INCLUDES NOTCHING, INSTALLATION CONNECTING TO BOXES, AND STRAPPING. (NO WIRE OR BOXES).

Electrical Estimating—III

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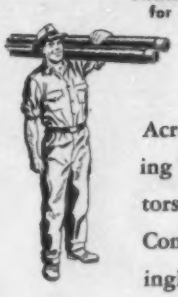
PROTECTION

FOR UNDERGROUND ELECTRICAL CABLES

STANDARD PROTECTION — for football — it's the helmet... for underground cables — it's Orangeburg Fibre Conduit.

NOCRETE for one or two ducts... installed *without* concrete encasement.

STANDARD for three or more ducts ... installed *with* concrete encasement.



Across the country in every city and state, leading Utilities, Municipalities, Electrical Contractors everywhere have made Orangeburg Fibre Conduit a leader, as its wide use convincingly shows.

You gain many advantages when you use Orangeburg. Its impermeable wall and tight joints prevent corrosive ground waters from entering. Its smooth bore and low coefficient of friction safeguard the cables when pulled in . . . also from wear during cable movement. Non-metallic Orangeburg does not corrode — resists acids, alkalies, grease, oil. It is tough, resilient, durable — will not crack or break when properly handled. And the installation cost is low because the lightweight 8-foot lengths are quickly connected by Taper-Sleeve Joints with just a few light taps. Orangeburg is easily sawed to any length — easily tooled with an inexpensive lathe.

For these and other reasons, Orangeburg is logically the leader — a first choice of so many public utilities, municipalities and electrical contractors everywhere.

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Orangeburg, New York — *West Coast Plant* — Newark, Calif.

ORANGEBURG®
FIBRE CONDUIT

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NOCRETE INSTALLED WITHOUT CONCRETE

GraybaR ELECTRIC COMPANY

DISTRIBUTORS, ORANGEBURG FIBRE CONDUIT

BRANCHES AND STOCKS IN PRINCIPAL CITIES

GENERAL ELECTRIC SUPPLY COMPANY
A DIVISION OF GENERAL ELECTRIC DISTRIBUTING CORPORATION

SWITCHES MAIN DISCONNECT "AC"

NEW WORK — STD. ENCLOSURE - 4 WIRE - 3 POLE - 250 V. SINGLE THROW

AMP. SIZE	HRS. EA.	LABOR COST INSTALLED EACH AT FOLLOWING RATES										
		$1.25	$1.50	$1.75	$2.00	$2.25	$2.50	$2.75	$3.00	$3.25	$3.50	$3.75
30	2.2	2.75	3.30	3.85	4.40	4.95	5.50	6.05	6.60	7.15	7.70	8.25
60	2.8	3.50	4.20	4.90	5.60	6.30	7.00	7.70	8.40	9.10	9.80	10.50
100	4.8	6.00	7.20	8.40	9.60	10.80	12.00	13.20	14.40	15.60	16.80	18.00
200	7.4	9.25	11.10	12.95	14.80	16.65	18.50	20.35	22.20	24.05	25.90	27.75
400	9.8	12.25	14.70	17.15	19.60	22.05	24.50	26.95	29.40	31.85	34.30	36.75
600	14.5	18.13	21.75	25.38	29.00	32.63	36.25	39.88	43.50	47.13	50.75	54.38
REWORK JOBS												
30	2.7	3.38	4.05	4.73	5.40	6.08	6.75	7.43	8.10	8.78	9.45	10.13
60	3.4	4.25	5.10	5.95	6.80	7.65	8.50	9.35	10.20	11.05	11.90	12.75
100	5.9	7.38	8.85	10.33	11.80	13.28	14.75	16.23	17.70	19.18	20.65	22.13
200	9.2	11.50	13.80	16.10	18.40	20.70	23.00	25.30	27.60	29.90	32.20	34.50
400	12.1	15.13	18.15	21.18	24.20	27.23	30.25	33.28	36.30	39.33	42.35	45.38
600	18.3	22.88	27.45	32.03	36.60	41.18	45.75	50.33	54.90	59.48	64.05	68.63

LABOR: INCLUDES MOUNTING SWITCH, AND CONNECTING ALL CONDUCTORS, MOUNTED ON WOOD.

STD. ENCLOSURE SWITCHES FUSELESS DISCONNECT

NEW WORK — 2 POLE "AC"

AMP. SIZE	HRS. EA.	LABOR COST INSTALLED EACH AT FOLLOWING RATES										
		$1.25	$1.50	$1.75	$2.00	$2.25	$2.50	$2.75	$3.00	$3.25	$3.50	$3.75
30	1.5	1.88	2.25	2.63	3.00	3.38	3.75	4.13	4.50	4.88	5.25	5.63
60	1.9	2.38	2.85	3.33	3.80	4.28	4.75	5.23	5.70	6.18	6.65	7.13
100	3.4	4.25	5.10	5.95	6.80	7.65	8.50	9.35	10.20	11.05	11.90	12.75
200	5.3	6.63	7.95	9.28	10.60	11.93	13.25	14.58	15.90	17.23	18.55	19.88
400	6.9	8.63	10.35	12.08	13.80	15.53	17.25	18.98	20.70	22.43	24.15	25.88
600	10.4	13.00	15.60	18.20	20.80	23.40	26.00	28.60	31.20	33.80	36.40	39.00
3 - POLE												
30	1.9	2.38	2.85	3.33	3.80	4.28	4.75	5.23	5.70	6.18	6.65	7.13
60	2.4	3.00	3.60	4.20	4.80	5.40	6.00	6.60	7.20	7.80	8.40	9.00
100	4.2	5.25	6.30	7.35	8.40	9.45	10.50	11.55	12.60	13.65	14.70	15.75
200	6.5	8.13	9.75	11.38	13.00	14.63	16.25	17.88	19.50	21.13	22.75	24.38
400	8.5	10.63	12.75	14.88	17.00	19.13	21.25	23.38	25.50	27.63	29.75	31.88
600	12.7	15.88	19.05	22.23	25.40	28.58	31.75	34.93	38.10	41.28	44.45	47.63
4 - POLE												
30	2.2	2.75	3.30	3.85	4.40	4.95	5.50	6.05	6.60	7.15	7.70	8.25
60	2.8	3.50	4.20	4.90	5.60	6.30	7.00	7.70	8.40	9.10	9.80	10.50
100	4.8	6.00	7.20	8.40	9.60	10.80	12.00	13.20	14.40	15.60	16.80	18.00
200	7.4	9.25	11.10	12.95	14.80	16.65	18.50	20.35	22.20	24.05	25.90	27.75
400	9.8	12.25	14.70	17.15	19.60	22.05	24.50	26.95	29.40	31.85	34.30	36.75
600	14.5	18.13	21.75	25.38	29.00	32.63	36.25	39.88	43.50	47.13	50.75	54.38

LABOR: INCLUDES INSTALLING SWITCH, AND CONNECTING ALL CONDUCTORS, MOUNTED ON WOOD.

Electrical Estimating—III

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If you sell, specify, or install electrical wiring devices : make it

Designed for Easy Wiring . . . for Hard Usage Year after Year

P & S KEYLESS LAMPHOLDERS

Practically every wiring installation calls for one or more of these lampholders. Strictly utilitarian, yes — but made of fine P&S porcelain with a quality P&S interior, they will give years of trouble-free service.

For 3¼" box — P&S 41.

For 3¼" and 4" boxes — P&S 110.

P&S 110

P & S PULL LAMPHOLDERS

P&S 4046-2

Feature one-piece construction — no separate shadeholder ring to loosen and fall off. Built-in mechanism of simplified design with terminal screws in most get-at-able position, eliminates necessity of removing interior to wire.

For 3¼" box — P&S 4026 with insulated chain, P&S 4026-2 with short chain and cord.
For 3¼" and 4" boxes — P&S 4046 with insulated chain, P&S 4046-2 with short chain and cord.

P & S PULL LAMPHOLDERS with CONVENIENCE OUTLETS

Have same one-piece construction as the P&S 4026 Line, PLUS a convenience outlet connected internally — no extra wires, soldering or taping. Ideal for attic, basement, garage, etc., where inexpensive lampholder with outlet is desirable.

For 3¼" box — P&S 5026 with insulated chain, P&S 5026-2 with short chain and cord.
For 4" box — P&S 5046 with insulated chain, P&S 5046-2 with short chain and cord.

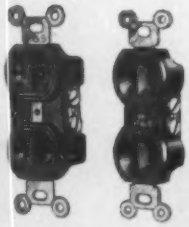
P&S 5046-2

P & S 1530 and 1570 — The OUTLETS with COMPLETELY INSULATED BACKS

Both P&S 1530 and P&S 1570 are easy to wire. Large head binding screws are spaced far apart — bodies are shorter, leaving more room in box. Plate screw hole in strap — no rivet to twist or turn. Both outlets have long-life phosphor bronze contacts — washer type ears — easy find slots.

P&S 1530 (brown) and P&S 1530-I (ivory) — T slot type.

P&S 1570 (brown) and P&S 1570-I (ivory) — Parallel slot type, double grip contacts.



P&S 1530 P&S 1570

Illustrated are just a few of the hundreds of wiring devices in the complete P&S line. All lampholders shown conform to Fed. Spec. W-L-142. Outlets conform to Fed. Spec. W-R-151. Every P&S device is a quality device — the result of experienced engineering, precision manufacturing and rigid inspection. Every P&S wiring device is BUILT TO LAST.

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In Canada: Renfrew Electric & Refrigerator Co., Ltd., Renfrew, Ont.

News of the industry

edited for Southern readers

AIEE finds wind, trees cause most line damage

WIND AND TREES cause most damage to electrical distribution lines the Fall General Meeting of the American Institute of Electrical Engineers, at Chicago, was informed in a report made by a joint working group of the American Institute of Electrical Engineers and the Edison Electric Institute. The report was based on a study of 1,925 faults on overhead lines of 32 utilities throughout the United States and in some parts of Canada, during 1949, 1950 and 1951.

Of the total faults reported, 21 per cent were of unknown causes, 46 per cent of the known faults were caused by wind and trees, 19 per cent by lightning and 11 per cent by equipment and wiring failures, the report said.

Sixty-one per cent, however, were temporary by nature and only 39 per cent were persistent by nature and caused outages.

Objectives of the study were "To stimulate interest in the problems associated with continuity of service from overhead distribution circuits and to determine what methods of construction and protection have been of value in improving performance of distribution circuits."

The study was confined to lines of the 5,000 volt class and did not extend to lines beyond low voltage transformers.

Electric light use triples in 10 years

AMERICANS ARE USING three times as much electric light today as they did 10 years ago, a lighting specialist of the Westinghouse Lamp Division, Bloomfield, N. J., has reported.

"Total national use of electric light is equivalent to the year-long burning, 24 hours a day, of 300 million 75-watt incandescent light bulbs," said E. W. Beggs, vapor and fluorescent lamp manager in the Commercial Engineering Department of Westinghouse Lamp Division headquarters. "In lighting terminology, it adds up to 2,250 thousand billion lumen-hours of light a year." Mr. Beggs revealed the figures in presenting the lighting industry's progress report for the past year to the annual national technical conference of the Illuminating Engineering Society meeting.

"Modern life, especially in the United States, is inextricably tied to electric light," Mr. Beggs added. "With five per cent of the world's population, we produce 45 per cent of the world's products. This would not be possible without adequate, dependable electric lighting."

"Factories are built without windows, and those that have them use their lights anyway," he went on. "Stores start selling when the lights go on. In fact, people think a store is closed if the lights aren't bright enough to compete with daylight. Streets are brilliantly lit to speed traffic safely and to reduce crime. Over 1,800 miles of mercury-vapor lighted streets and highways were installed last year, bringing the total to some 6,800 miles. School lighting is one of the fastest growing applications, with more schools relighted this year than in any previous year."

"Home lighting is the new American hobby. Spend $100 and double the size of your house," Mr. Beggs advises. "Many people are putting in basement recreation rooms, made possible, of course, because of lighting. Others are lighting their gardens and enjoying outdoor living in the cool of the evening. The rest of us are at last getting around to lighting our homes better so we can live more fully in them."

AHLI to test built-in lighting fixture use

A NEW METHOD for demonstrating the beauty and advantages of built-in lighting fixtures will be tested this fall, when the American Home Lighting Institute, Inc., opens the doors of an experimental model home in the north suburban area of Chicago for public inspection.

The home, a five room, ranch-type, frame structure will be completely furnished and feature regular production models of modern lighting fixtures throughout. During public display hours, members of the American Home Lighting Institute, Inc., will be in attendance in order to gain first-hand consumer reaction to the advantages of planned adequate lighting through the use of installed lighting fixtures.

Architect for the home is Jules

SUPER LIGHT FOR SUPER MARKET—Sta-Brite Fluorescent Manufacturing Co., Miami, Fla., is proud of this installation, completed recently for Shells Super Market in Miami. Four-lamp, eight-foot fixtures in continuous rows on 15-foot centers, 15 feet above the floor, provide an average of 63.5 foot-candles 36 inches above the floor. Fixtures are lamped with warm white lamps.

A New Angle on LIGHT

***Only* SWIVELIER'S**

Universally Adjustable Recessed

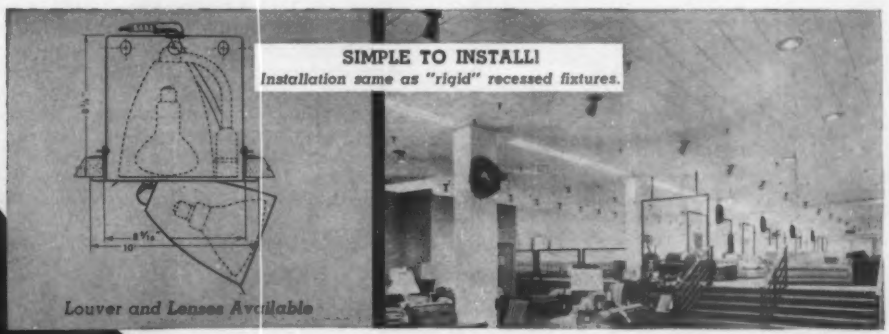
GYRO-LITE

Angles FULL 90° and Rotates 350°

SPOTS THE LIGHT WHERE YOU WANT IT!

"GYRO-LITE" eliminates "lumen dead spots"— furnishes lighting emphasis *where* it is needed, *when* it is needed. It accommodates 75-watt PAR-38, 150-watt PAR-38 and 75-watt R-30 lamps.

The skillfully-engineered "GYRO-LITE" is made with the unique Swivelier Spring-Tension Socket which adjusts to any position and "stays put . . . at any angle!" *(U. S. Air Force tests show "no decrease in tension after 10,000 adjustments".)* Specify "GYRO-LITE" for that *new* lighting angle for stores, showrooms, auditoriums, museums and modern homes.



ONLY SWIVELIER PRODUCTS ARE MADE WITH THE PATENTED SPRING TENSION SWIVELIER SOCKET

LOOK FOR THE SWIVELIER TRADEMARK ON EVERY SWIVELIER PRODUCT

FOR HIGH CEILING LIGHTING APPLICATIONS USE SWIVELIER'S

PAR-BEAM-LITE*

Offers three intensities of illumination: 300-watt PAR-56 Spot, 300-watt PAR-56 Flood, 200-watt PAR-46 Spot.

* Reg. U.S. Pat. Off.

• *Write Dept. PA9 for complete SWIVELIER Catalog.*

swivelier Company, Inc. 30 Irving Place, New York 3, N. Y.

PLANT: BUSH TERMINAL BUILDINGS. BROOKLYN 32. NEW YORK

Marling of Chicago, who has recently won nationwide acclaim in many of the shelter magazines for his functional approach to modern residential design. Todays Trend For Living, Inc., specialists in low to moderate cost suburban housing in the Chicago area, is the builder of the AHLI market study home.

According to Miss Minita Westcott, managing director of the American Home Lighting Institute, Inc., the purpose of the home is twofold.

"First," she said, "we initiated this venture in order to provide our institute members with a more intimate and personal contact with the ultimate consumer and thereby obtain more direct feel of the ultimate consumer sales potential for installed home lighting fixtures. Also," Miss Westcott continued, "we hope to gather a considerable amount of data on buying urges and buying appeals for a wide variety of lighting fixture styles that will be of inestimable value to members of the AHLI in their marketing and merchandising programs. We feel," concluded Miss Westcott, "that the public will respond much more favorably to a display of the product in use than to a mass display of lighting fixtures alone."

As a means of public identification for the AHLI model home, the institute's two-color emblem will be prominently displayed on the premises.

Alcoa develops new alloy for conducting electricity

A NEW ALUMINUM ALLOY for conducting electricity, No. 2EC, has been developed by Aluminum Company of America, Pittsburgh, Pa.

This new alloy is a tailor-made material developed to meet the high performance requirements of the electrical equipment manufacturing industry.

No. 2EC aluminum conductor alloy has superior mechanical properties, with a slight sacrifice in electrical conductivity over other aluminum alloys used for conductor purposes. Such properties are especially important for applications requiring high yield strength and low creep.

Fluorescents for exacting sight needs

OVER 2450 Sunbeam fluorescent lighting fixtures of various types were installed throughout the offices, laboratories, and cafeteria of the recently completed research plant of the Stanolind Oil Co., Tulsa, Okla.

Lighting in this laboratory of the Stanolind Oil Co., Tulsa, is typical of the high level uniform illumination installed for this research plant's exacting sight requirements. (Photo courtesy Sunbeam Lighting Co.)

Because of the exacting seeing requirements of the installation, fixtures and lighting plans were engineered to produce high levels of uniform illumination. Most of the installation involved Sunbeam's No. 5600 series recessed troffers, T-Bar mounted at a height of ten feet in acoustical ceilings. A mass spectrograph laboratory and a chemical laboratory were typical areas of the plant. The chemical laboratory (illustrated here) was equipped with full lengths of continuous rows of fixtures to achieve uniform brightness. The average maintained illumination level is 55 footcandles at the work plane.

Beauty-plus program pushed by utilities

ANNOUNCEMENT has been made by Don Julien, managing director of the Beauty-plus Lamp Council, 2116 Keith Bldg., Cleveland 15, Ohio, that a total of 88 utilities will promote the Beauty-plus program this fall, and that there are now 49 portable lamp manufacturers making lamps that meet the Beauty-plus specifications.

The program, which was originally announced by J. Reed Hartman, chairman of the Edison Electric Institute Commercial Division and vice-president of the Cincinnati Gas and Electric Co., in April, has been picking up steady support during the past months.

Among the Council's more recent activities have been the sponsorship of Information Centers at the Merchandise Mart during the Summer Chicago Lamp Show and at the New York Lamp Show. Featured in these centers was a huge map of the United States which showed the locations of the electric utilities that will conduct local Beauty-plus promotions this fall. In addition, there was a listing of the lamp manufacturers who are producing Beauty-plus lamps, a display of literature, window streamers, display cards and other promotional materials.

Detailed information as to the nature of the timing of each supporting utility's promotional activities is on file at Beauty-plus headquarters for the information of interested dealers and distributors.

The main purpose of the Beauty-plus program is to sell more lamps. Mr. Julien states that at present there is an average of 4.5 lamps in American homes with a need and market for 15 lamps per home. He stated that the retailer can assist in this lamp promotion on the local level by advertising the Beauty-plus lamps; by displaying them in windows and on the floor; by talking them to his customers, and above all, when he buys lamps by saying "I want lamps with the Beauty-plus tag."

"We at Beauty-plus headquarters feel that the program now is 'off the ground'," Mr. Julien said. "There is plenty to be done from here for this program was conceived as a continuous and ever-growing activity, not a one-time 'shot in the arm'."

WHY IT WILL PAY YOU TO USE BELL SYSTEM COMMUNICATIONS SERVICES

You save money

With Bell System services, you get efficient and dependable communications at low cost. You are relieved of maintenance, depreciation and other costs of privately owned communications.

You get the service you need

It's flexible and complete. We furnish communications tailored to your exact needs. No more, no less. A change in number or type of circuits can be made any time to keep your communications in step with changing needs.

You get the best service

The Bell System is constantly developing new equipment, methods and techniques to improve your service and keep your communications from becoming obsolete.

You have more investment money available

Your capital is *not* tied up in communications equipment but is available for investment in income-producing power equipment and services.

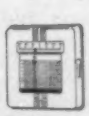
You concentrate on your own business

Our business is entirely communications, and that's one reason the Bell System offers power companies the finest services today. A communications study by specialists, made without charge, frequently indicates how a power company can improve its communications and realize increased benefits and economies. Talk this over with the Bell Telephone representative near you.

PRIVATE-LINE TELEPHONE

TELETYPEWRITER

MOBILE TELEPHONE


METERING CHANNELS

BELL TELEPHONE SYSTEM

Dr. Lowry, Sylvania, wins IES 1954 medal

DR. ERWIN F. LOWRY of Sylvania Electric Products, Inc., has received the 1954 Gold Medal of the Illuminating Engineering Society. This medal, highest honor in the field of illumination, is awarded for meritorious achievement conspicuously furthering the profession, art or knowledge of illuminating engineering. Presentation of the medal was made at the Society's recent Annual National Technical Conference.

Dr. Lowry is the first physicist engaged in light source research chosen to receive the Society's medal. Nearly thirty patents have

E. F. Lowry

resulted from Dr. Lowry's research, almost all of which are related to gaseous discharge devices, especially cathodes. Most of his contributions to lighting are found in the development of the fluorescent lamp.

For the past 25 years Dr. Lowry has devoted his efforts to the specialized problems involved in the design and development of cathodes for gas filled tubes. From the standpoint of fluorescent lamps, his most important work was his investigation of methods of protecting oxide cathodes from the injurious effect of ion bombardment.

In the field of phosphors Dr. Lowry initiated and directed research that has resulted in improved color uniformity, greater light output and through phosphor stability, in large gains in lumen maintenance.

His papers, delivered principally before the I.E.S., in which he disclosed research data to correlate the electrical and light characteristics of fluorescent lamps, constitute some of the basic data on fluorescent lamps. They have made it possible to design these lamps to rigorous specifications. Dr. Lowry initiated and directed the research which led to the development of the electro-luminescent lamps as a practical device.

A fellow of I.E.S. (1950), Dr. Lowry has been active in Society work, having been chairman of the Light Source Committee and the Board of Fellows. He is a member-at-large of the United States National Committee, C.I.E., a member of the American Physical Society and the Electrochemical Society where he has taken an active part in the Luminescence Section of the Electronics Division, of which he is past chairman.

Since 1940 Dr. Lowry has been associated with the Lighting Division of Sylvania Electric Products, Inc., where he is now manager of the Lighting Engineering Laboratories.

Belcher & Associates announce expansion

ANNOUNCEMENT of personnel additions and establishment of branch offices has been made by H. Jack Belcher, H. Jack Belcher & Associates, 2701 Atlantic Blvd., Jacksonville, Fla., manufacturers' representatives for electrical transmission and distribution equipment.

Carl L. Smith is serving the firm as Birmingham branch office manager. Mr. Smith now travels Alabama and West Florida for Belcher. He was formerly employed as Alabama sales manager by Southern States Equipment Corp., Hampton, Ga., and previously had more than 20 years utility experience with Birmingham Electric Co., now a division of Alabama Power Co.

W. T. Workinger, headquartered in Atlanta, travels the State of Georgia for the Florida firm. Mr. Workinger is an electrical engineering graduate of the University of Florida, and has been with the Belcher organization since June, 1950.

Jim Womble, Bob Burney and Mr. Belcher constitute the Jacksonville headquarters staff of the firm. Mr. Belcher is continuing his calls on central stations and district electrical wholesale offices in Alabama, Florida and Georgia.

UL releases bulletin on aluminum wires

UNDERWRITERS' LABORATORIES, INC., 207 E. Ohio St., Chicago 11, Ill., has released a new Bulletin of Research, No. 48, entitled "Aluminum Building Wires and Connectors."

This Bulletin of Research reports an investigation conducted by Underwriters' Laboratories, Inc., to obtain information on building wires employing aluminum instead of copper as the electrical conductor, and on solders and pressure wire connectors when used for making the joints in such conductors.

Among the phases of the problem covered are installation in conduit, breaking load, flexibility, soldering, joint compounds, corrosion, heating, short circuits, assembly, secureness, pullout, preparation of joints, and interstrand resistance.

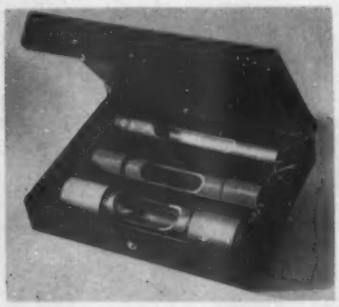
NFE Conference returns to open type meeting

THE NATIONAL FARM Electrification Conference returns this year to the same type of open meeting conferees have enjoyed in the past, according to a recent announcement by Russell Gingles, secretary of the Conference and manager of the Farm Electrification Bureau of the National Electrical Manufacturers Association. This year's Conference has been set for Schenectady, N. Y., November 18 and 19, with headquarters at the Van Curler Hotel. Interested readers are urged to make their room reservations now.

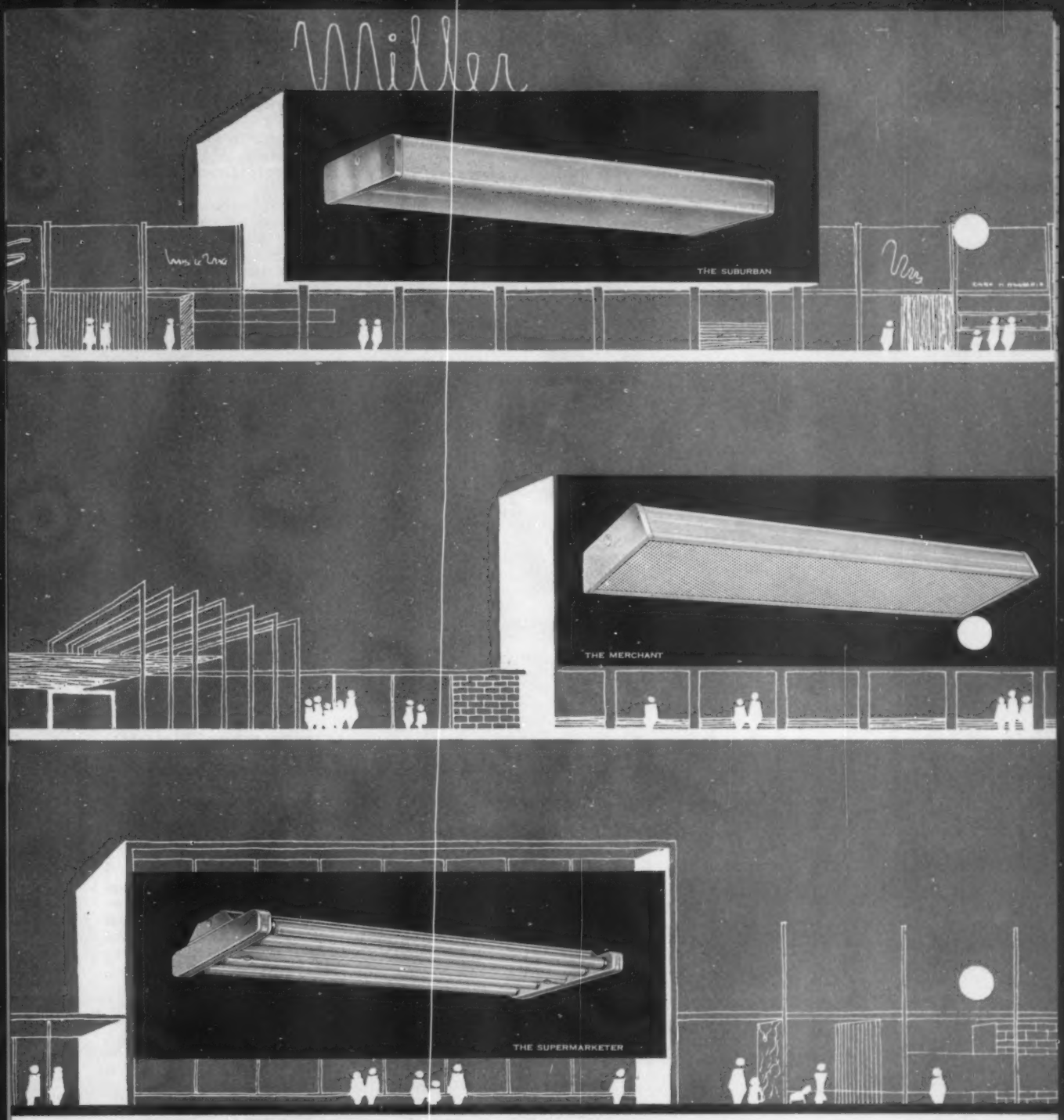
Conference General Chairman Karl H. Runkle, manager of General Electric's Industry Sales Department will preside at the meeting, and top speakers will discuss the toughest of farm electrification problems.

In addition, conference leaders will present a comprehensive and long-range program for putting the conference on a working year-round basis instead of continuing as a "one-shot" annual affair.

Other features of this year's Conference include a panel discussion, headed by a prominent



JEWEL-BOX SETTING—A jewel-box setting is provided for Spang Conduit in the new sample case carried by conduit representatives of the Spang-Chalfant Division of the National Supply Co., Pittsburgh, Pa. Each sample is cut away to permit the inner construction to be studied.



PROFIT WITH NEW MILLER FLUORESCENT STORE LIGHTING FIXTURES

DESIGNED FOR MODERN SHOPPING

DO YOU KNOW THAT WITH JUST THESE THREE FIXTURE TYPES YOU CAN SELL LIGHTING TO STORES OF ALL TYPES? IT'S AS SIMPLE AS THAT. MILLER HAS DESIGNED THIS EXCITING NEW FAMILY OF FIXTURES SPECIFICALLY FOR MODERN SHOPPING. WE HAVE MADE IT A SHORT LINE, AND A PACKAGED LINE . . . EVERY FIXTURE COMPLETE, READY FOR YOUR PICK UP FROM DISTRIBUTOR STOCKS.

THERE'S BIG BUSINESS FOR THE CONTRACTOR WITH THESE NEW MILLER FIXTURES. ON EVERY BUSINESS STREET IN EVERY CITY AND TOWN, WHERE STORES BY THE THOUSANDS ARE STRUGGLING ALONG WITH INADEQUATE LIGHTING SYSTEMS. TO HELP GET THIS BUSINESS WE ARE MAKING AVAILABLE TO THE ELECTRICAL CONTRACTOR THE BIGGEST SET OF SELLING TOOLS EVER PROJECTED. PRACTICAL HELPS THAT ENABLE HIM TO FOLLOW THROUGH ON THE EDUCATIONAL WORK OF NEMA AND NECA, TO CASH IN ON IT. CONTRACTORS ARE INVITED TO WRITE FOR A COPY OF THE NEW MILLER SALES PROSPECTUS.

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radio commentator, answering the question — "Does Farm Electrification Pay?"; a key college leader in agricultural communications, who will give his views on effective selling to farm people; a panel of experts, who will discuss the shortcomings of rural salesmanship and service; and a report presented on the latest development in agricultural sales promotion activities —the Inter-Industry Farm Electric Utilization Council.

Benjamin announces executive appointments

ADVANCEMENT of eight Benjamin executives to new positions of responsibility was announced recently by Hoyt P. Steele, newly-elected president of Benjamin Electric Manufacturing Co., Des Plaines, Ill., manufacturer of industrial and commercial lighting equipment and signals.

The appointments were as follows: George F. Niemann, works manager; Alva H. Meyer, manager of manufacturing engineering; Carle E. Rackley, chief engineer; Clement P. Mors, general superintendent; Henry A. Flentge, production manager; Eric H. Church, manager of industrial engineering; Raleigh I. Klipstein, plant engineer; and James R. Chambers, sales promotion and advertising manager.

Malleable Iron names Florida sales agents

APPOINTMENT of Robert P. Smith & Co., Jacksonville, as sales agents for Central and Northeastern Florida, and Lee-Smith Co., Miami, as sales representatives in the Southern and Southeastern part of the state, has been announced by the Pole Hardware Division, Malleable Iron Fittings Co.

"Why not start me out at a hundred a week so I won't have to keep bothering you all the time for a raise?"

Texan invents detector for static electricity

A MACHINE that detects static electricity in volume in hazardous spots, such as operating rooms, was presented by its inventor to the Scottish Rite Hospital for Crippled Children in Dallas, Texas, recently.

The inventor is John C. Steele, chief electrical inspector for the city of San Angelo, Texas. His machine, an electronic device for which there is a limited market, sells at retail for $550.

Howarth appointed G & W representative

ACCORDING to an announcement made recently, J. L. Howarth Co., 2550 Beverly Drive, Birmingham 9, Ala., has been named representative of the G and W Specialty Co., Chicago, for the States of Alabama and Western Florida.

Mr. Howarth, who also represents Standard Transformer, was formerly associated with Anderson Brass Co., Birmingham, as sales manager.

Dates Ahead

Florida Association of Electrical Contractors, Annual Convention, Orange Court Hotel, Orlando, Fla., Oct. 15-17, 1954.

Oklahoma Utilities Association, Electric Light and Power Division, Western District Meeting, Duncan, Okla., Oct. 21, 1954; Eastern District Meeting, Ada, Okla., Oct. 22, 1954.

Florida Chapter, IAEI, Joint Meeting with Southern Section, Tampa Terrace Hotel, Tampa, Fla., Oct. 25-27, 1954.

Southern Section, IAEI, Tampa Terrace Hotel, Tampa, Fla., Oct. 25-27, 1954. Conference chairman, R. A. Miller, Tampa.

National Electrical Contractors Association, Annual Convention, Jung Hotel, New Orleans, La., Oct. 27-30, 1954.

Southeastern Electric Exchange, Accounting Section, Roanoke Hotel, Roanoke, Va., Oct. 28-29, 1954.

Southeastern Electric Exchange, General Sales Conference, Roosevelt Hotel, New Orleans, La., Oct. 28-30, 1954.

Southeastern Electric Exchange, Employee and Public Information Section, Roosevelt Hotel, New Orleans, La., Oct. 28, 1954.

Public Information Program, Workshop Conference, Chase Park Plaza Hotel, St. Louis, Mo., Oct. 28-29, 1954.

American Institute of Electrical Engineers, Southern Textile Conference, North Carolina State College, Raleigh, N. C., Nov. 4-5, 1954.

Natl. Elec. Mfgrs. Assn., Annual Meeting, Haddon Hall Hotel, Atlantic City, N. J., Nov. 8-11, 1954.

National Farm Electrification Conference, 1954 Conference, Van Curler Hotel, Schenectady, N. Y., Nov. 18-19, 1954.

American Institute of Electrical Engineers, Winter General Meeting, Hotel Statler, New York, N. Y., Jan. 31-Feb. 4, 1955.

Southeastern Electrical Wholesalers Association, Fifth Annual Industry Day Meeting, Atlanta Biltmore Hotel, Atlanta, Ga., Feb. 2-4, 1955. M. L. Tice, Exec. Vice-Pres., P. O. Box 176, Ben Hill, Ga., Tel.: Atlanta Amherst 6182.

Public Utility Buyers' Group, National Association of Purchasing Agents, 24th annual Mid-Winter Conference, the Shamrock Hotel, Houston, Tex., Feb. 13-15, 1955.

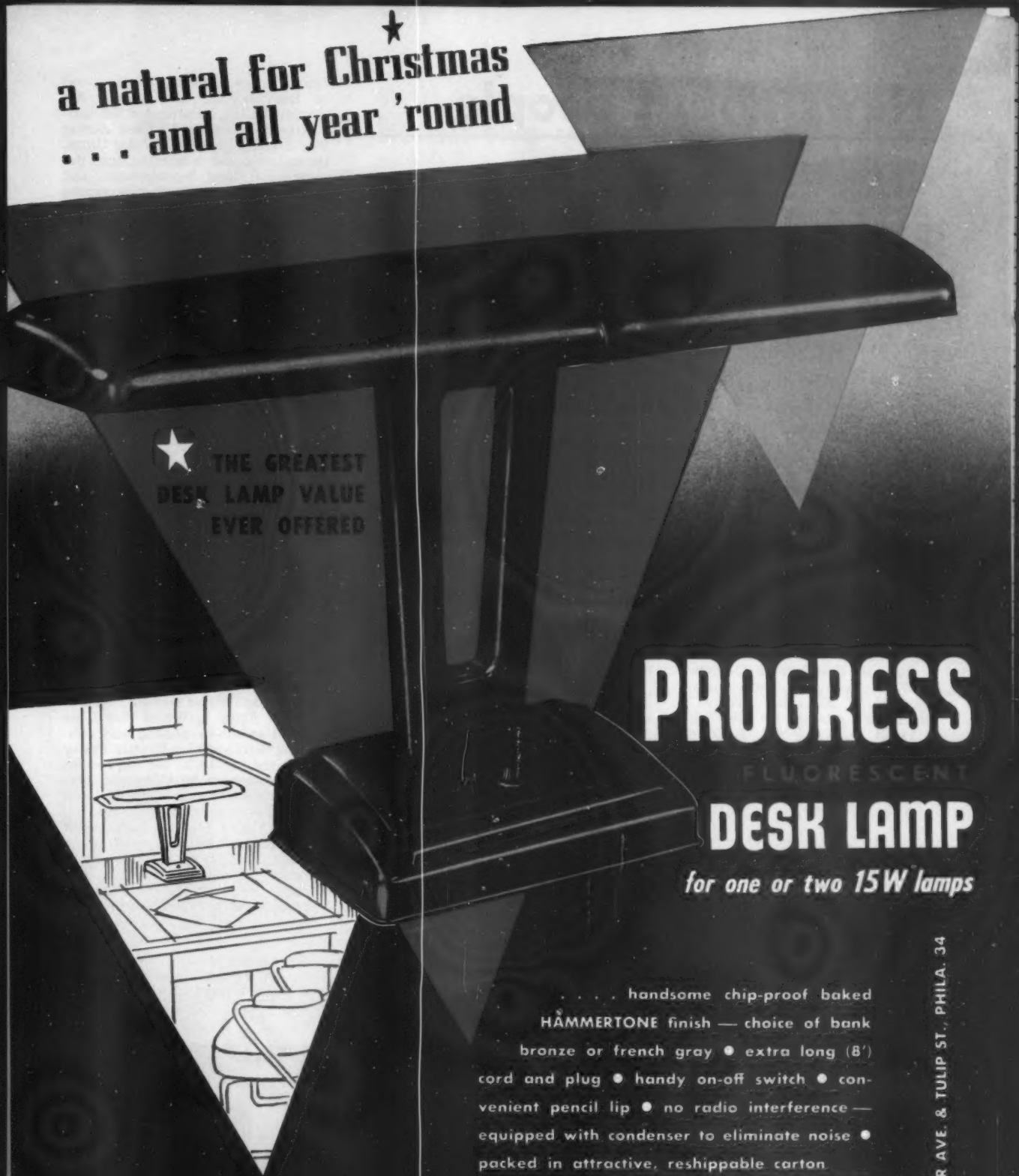
Southern Safety Conference and Exposition, Jung Hotel, New Orleans, La., Feb. 27-28, March 1, 1955. W. L. Groth, Exec. Dir., P. O. Box 8927, Richmond 25, Va.

Oklahoma Utilities Association, Annual Convention, Mayo Hotel, Tulsa, Okla., March 24-25, 1955.

American Institute of Electrical Engineers, Southern District Meeting, St. Petersburg, Fla., April 13-15, 1955.

American Institute of Electrical Engineers, Electric Heating Conference, LaSalle Hotel, Chicago, May 10-11, 1955.

a natural for Christmas ... and all year 'round



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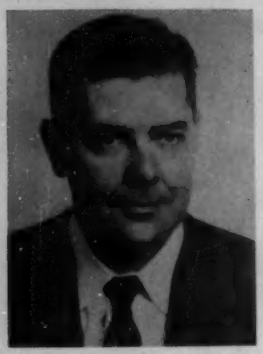
News about people

Thomas G. Hearn has been appointed sales manager of the fluorescent fixture manufacturing department of **Sylvania Electric Products, Inc.**, according to an announcement by **Charles A. Burton**, general sales manager of Sylvania's Lighting Division. Mr. Hearn will make his head-



T. G. Hearn

quarters at the company's new fixture plant in Wheeling, W. Va.

Joining Sylvania in November, 1947, as sales representative in Syracuse, N. Y., Mr. Hearn became district sales manager of the Buffalo area in October, 1951. In August, 1953, he was promoted to regional sales supervisor of fixtures. Before joining Sylvania, Mr. Hearn was affiliated with Niagara Hudson Power Co.

James H. Knowles, president, **Hubbard and Co.**, Pittsburgh, Pa., has announced the following personnel appointments and promotions:

Howard Jackson is promoted to vice-president in charge of production at the Pittsburgh and Chicago plants. He has been with Hubbard since 1937, and was in charge of production of the Chicago plant. Previous to joining Hubbard, Mr. Jackson was superintendent of Stesco Steel Co., Michigan City, Ind.

Charles S. Kernaghan has been elected vice-president in charge of merchandising and assistant to the president. Mr. Kernaghan had been vice-president and director of the Waterman Pen Co., for the past 13 years and previously was with the Radio Corporation of America.

Richard G. Robbins has been promoted to vice-president and general sales manager of the Pittsburgh and Chicago plants, covering the Eastern and Mid-Western territories. Mr. Robbins joined the Hubbard organization in 1923 as an assistant to several department heads. His other positions with the company have been advertising manager, assistant sales manager, divisional sales manager, and vice-president, Eastern Division.

At the same time, it was announced that **Alton R. Smith**, assistant superintendent to Howard Jackson at the Chicago plant, had been promoted to works manager of that plant and that **John Winke** was appointed assistant works manager to Mr. Smith.

Lon C. Hill was elected chairman of the board of directors and **J. L. Bates** was elected president of **Central Power and Light Co.**, recently. The two CPL executives were elevated to their new positions by action of the board of directors at a meeting in Corpus Christi.

Mr. Hill has been CPL president since 1939 and Mr. Bates has been

Lon C. Hill

vice-president and general manager since 1940. He will continue to serve as general manager in addition to his new duties as president.

Both men are widely known throughout South Texas and have been active in civic, cultural and educational affairs.

Mr. Hill is a native of Manor, Texas. After spending his boyhood in Beeville and the Lower Rio Grande Valley, he attended the University of Texas and served during World War I in the Army Air Corps. He was engaged in farming, land development, land management and investment banking before becoming president of CPL. Under his leadership Central Power and Light has experienced its greatest period of

J. L. Bates

growth. Its assets have more than doubled, its annual revenues have more than tripled, and the electric power supply available to South Texas has more than quadrupled.

Mr. Bates was born and reared in Beeville, Texas, and attended the Agricultural and Mechanical College of Texas. After serving overseas with the Army in World War I, he engaged in silver mining and contracting before joining Central Power and Light in 1923. He served as CPL manager at McAllen and Mission, as distribution engineer and assistant district manager at San Benito, as Valley District manager at San Benito, and as vice-president and division manager at Victoria before becoming vice-president and general manager in 1940. He observed his 31st anniversary with CPL this year.

Two executive appointments have been made by the **Edwards Company, Inc.**, manufacturer of electrical sig-

Howard Jackson

C. S. Kernaghan

R. G. Robbins

The green light all the way with...

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ACCURATE is the choice for every electrical application. For regular wiring or heavy duty insulation, **ACCURATE** Standard and Specification Grades exceed required standards. Made of the finest raw materials, carefully compounded by tape specialists, every foot of Accurate Tape is inspected and tested by methods proved by experience gained in 30 years of tape manufacture. Specify **ACCURATE** for positive electrical and mechanical protection.

ACCURATE *FRICTION* TAPE

High grade carefully compounded rubber with finest cotton base provides maximum mechanical protection. Standard and A.S.T.M. grades.

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Features high elasticity, excellent cohesion, high dielectric and super aging qualities. Available in Standard and A.S.T.M. — A.A.R. grades.

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Offers a bulk-reducing combination of thin caliper, good mechanical and dielectric strength. Recommended for use wherever plastic tape is practical.

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nalling, communication and protection equipment.

At a meeting of the Board of Directors, **Thomas S. Nolan** of Norwalk, formerly vice-president in charge of marketing, was elected executive vice-president of the company. Assistant Treasurer **Eugene P. Werner** of Wilton was elected treasurer and secretary and made a director. He replaces the late treasurer, **E. P. McHugh.**

Mr. Nolan, who joined the company in 1915, also has become a vice-president and director of the Canadian company of Edwards. Mr. Werner has become director of the Canadian company.

R. W. Minett, sales manager, has announced the appointment of two new sales representatives in the South for the **Moe Light Division of Thomas Industries, Inc.,** whose general offices are at Fort Atkinson, Wis.

Albert Seiferheld, Jr., will headquarter in New Orleans and will cover a territory which includes most of the states of Louisiana and Mississippi.

Frank A. Cody will headquarter in

V. L. Wrye

Atlanta, and will represent Moe Light in the State of Georgia.

Activities of these two new sales representatives will be supervised by **Vernon L. Wrye,** who was recently named regional manager for Moe Light in a newly-formed sales region which includes the Middle and South Atlantic States with the exception of Florida.

Mr. Wrye, who makes his headquarters in Baltimore, Md., joined the Moe Light organization in 1950 as a sales representative, and in 1952 was appointed district manager for the Middle Atlantic States. He held this position until taking over the regional managership.

According to an announcement made by **W. E. Henges, Graybar** president, **E. P. Hoeffler** has been appointed district operating manager at St. Louis, Mo. Mr. Hoeffler has been with Graybar since September, 1919, recently celebrating his 35th anniversary. His career has been spent at Graybar offices in Cleveland, Toledo, Akron, Pittsburgh and the New York executive offices.

He has held the positions of service man, service supervisor, office salesman, head office salesman, branch operating manager and district operating manager. While in New York he served as assistant on the staff of Vice-President E. W. Cashman.

J. D. Doyle, Pine Bluff, has been promoted to the position of budget officer of the **Arkansas Power & Light Co.,** filling the vacancy created by **S. W. Kittleman,** who has retired, but has been retained on an advisory basis with the company.

Mr. Doyle has been assistant valuation engineer in the budget, statisti-

J. D. Doyle

cal and valuation department for eight years.

Joining Arkansas Power & Light in 1928 as timekeeper with the general office engineering department, he was moved to the appraisal and valuation department in 1933. Mr. Doyle was loaned to the Mississippi Power and Light Co., in 1934, to help with some appraisal work and stayed with them four months. Returning to AP&L that same year, he was promoted to assistant to the chief valuation engineer in 1937.

T. D. MacLafferty, manager of assemblies and components sales, has announced the appointment of **A. T. Allison** as regional manager for the Southeastern region of **Assemblies and Components Sales.** Included in this region are Virginia, North Carolina, South Carolina, Georgia, Florida, Northern Alabama, Eastern Tennessee, Kentucky, and the Southern section of West Virginia.

The **Assemblies and Components Sales Section** is the selling organization for the **Distribution Assemblies and Trumbull Components Departments of General Electric.** The main office of A & C Sales as well as the Product Departments are located at Plainville, Conn.

Mr. Allison joined the former Trumbull Electric Manufacturing Co., (now a department of General Electric) in 1928. In 1937 he was made a sales representative in the Cincinnati territory. He became a sales representative working out of the New York City office in 1940. In 1944 he was transferred to the Southeastern district as a sales representative. In 1948 he was appointed district manager for this district; a position he has held up to his present appointment.

Mr. Allison makes his home and has his office in Charlotte, N. C.

W. I. Patterson, founder of **Steel City Electric Co.,** Pittsburgh, Pa., and well known in the electrical field, passed away on Monday night, August 30th.

Mr. Patterson, who was serving as chairman of the board of Steel City, was active in the business and vitally interested in its present expansion program right up to the time of his death.

Announcement has been made of the appointment of **George C. Blew** as Kansas City, Mo., representative of the **Chelsea Fan and Blower Co.,**

G. C. Blew

Inc. Mr. Blew was formerly service manager at the Chelsea home office in Plainfield, N. J. His territory will include Kansas, Nebraska, Oklahoma, Northern Texas, Western Missouri, and Ft. Smith, Ark.

Ray N. Benjamin, chief engineer of the **Georgia Power Co.,** Atlanta, was elected a vice-president of the company at a recent meeting of the board of directors. Mr. Benjamin succeeds **William P. Hammond,** vice-president in charge of engineering, who has retired.

A native of Greenwood County, S. C., Mr. Benjamin was graduated from Clemson College in 1915 with degrees in mechanical and electrical engineering. He saw service during World War I, and joined Georgia Power in 1919. He held the positions of draftsman, structural engineer, hydraulic engineer, civil engineer

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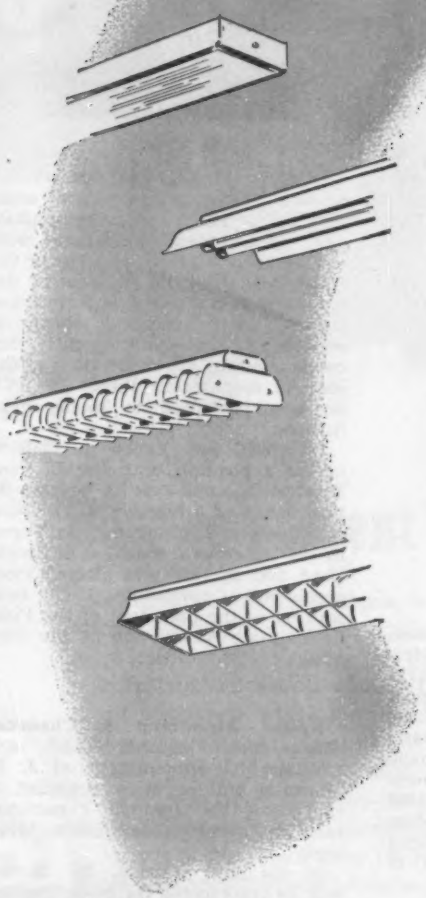

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"Tailored to the Tube" truly describes CERTIFIED CBM BALLASTS. They are made to specifications that match the requirements of the fluorescent tube they operate.

Ballasts made to these exacting specifications, designated by Certified Ballast Manufacturers, assure

LONG LAMP LIFE **LONG BALLAST LIFE**
FREEDOM FROM OVER-HEATING
QUIET, TROUBLE-FREE OPERATION

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Makers of Certified Ballasts for Fluorescent Lighting

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and mechanical engineer before being appointed chief engineer in 1953.

Mr. Hammond was born in Atlanta and was graduated from Georgia Tech before joining the company 41 years ago. He was a pioneer in the development of the company's North Georgia hydroelectric plants, and designed the Burton, Nacoochee, Terrora, Tugalo and Yonah dams and power houses as well as the transmission lines constructed between 1916 and 1927. From 1927 to 1930 he served with engineering companies affiliated with Georgia Power, with offices in Birmingham, Ala. He returned to Georgia Power in 1930 as general engineer. In 1944 he was elected vice-president in charge of engineering.

Ralph W. Donald, who served with the **General Electric Company's Apparatus Sales Division** in Atlanta, Ga., for the past 37 years, was drowned August 18 at Lake Allatoona, near Atlanta, when he fell from a boat.

Mr. Donald began work with G-E in 1917 after completing a commercial course at Georgia Institute of Technology. For 25 years, he was Southeastern District auditor and manager of finance, and for the past year served as a special consultant.

It was announced recently by **O. A. Sutton,** president and chairman of the board of **O. A. Sutton Corp.,** Wichita, Kansas, that several executives of the company have been promoted to new positions created by the expansion of the company's operation.

Mr. Sutton also announced at the same time the resignation of **Austin Rising** as vice-president and sales manager. **Earl H. Renfro** has been appointed as assistant general sales manager to co-ordinate the activities of the two divisions.

Fred Kaths, who joined the Sutton organization in 1946 as a district sales manager and was promoted to advertising director in 1949, has been appointed as sales manager of the consumer appliance division. He will be responsible for the sales of Vornado window air conditioners and Vornado air circulators.

Wesley Brient, who has been district sales manager for Vornado for eight years, has been named sales manager of the commercial products division.

Fred Ricketts, formerly sales promotion manager, has been appointed advertising manager to fill the vacancy created by Mr. Kaths' promotion.

The board of directors of the **Virginia Electric and Power Co.,** Richmond, elected **M. C. Smith** executive vice-president and **Erwin H. Will** vice-president and general manager of the company at a recent meeting.

Mr. Smith will fill the vacancy created by the recent retirement of W. E. Wood, and Mr. Will takes over the position formerly held by Mr. Smith.

A graduate of the University of Maine in electrical engineering, Mr.

M. C. Smith

Smith entered the public utility business with the Cape Breton Electric Co., at Sydney, Nova Scotia, in 1912 and had worked his way up to purchasing agent and assistant to the superintendent of the electric department when, in 1915, he was made superintendent of light and power for that company. From 1931 to 1936 he was president of the El Paso Electric Co., El Paso, Texas, leaving there to become vice-president of Vepco in Richmond. He was elected vice-president and general manager of Vepco in 1950.

A native of Richmond, Mr. Will was graduated from Virginia Polytechnic Institute with a bachelor of

E. H. Will

science degree in mechanical engineering in 1922. Following graduation, he accepted employment with the Virginia Railway and Power Co. (now Vepco), in the engineering department at Richmond and later was transferred to Norfolk in charge of engineering and subsequently became assistant superintendent of the electric department there. In 1928, he was promoted to manager at Suffolk.

Mr. Will left Vepco in 1935 to accept a position with the El Paso Electric Co., and rose to become its president and a member of its board of directors. He returned to Vepco in 1947 as general manager of operations and in 1950 was elected vice-president — operations. He is now serving as the president of the Public Utilities Association of the Virginias.

Kaiser Aluminum & Chemical Sales, Inc., Oakland, Calif., announces the appointment of **J. P. Moran** as building wire specialist, in charge of the company's national sales program for aluminum building wire.

In his new position, Mr. Moran will be responsible for co-ordinating the Kaiser Aluminum building wire program and will report to **G. N. Houck,** manager of electrical products, Chicago.

He will be assigned temporarily to the corporation's sales office in Philadelphia, Pa.

Mr. Moran, a graduate of New York University, has a wide acquaintanceship throughout the power industry. He served with Consolidated Edison in New York before joining Kaiser Aluminum in 1950.

Since joining the company, he has been electrical conductor product salesman for the New York district and later for the Philadelphia district.

Earl Renfro **Fred Kaths** **Wesley Brient** **Fred Ricketts**

Oscilloscope trace indicates ionization of this power cable.

4 AWG stranded 3/c RoZone® insulated, shielded, RoPrene sheathed power cable, 5000 volts.

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The instrument, pictured above, is your assurance of maximum protection against one of the most insidious of cable hazards . . . ionization.

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Perhaps the most hazardous thing about ionization is that ordinary visual, physical and electrical tests will not show evidence of it.

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This completely new NONDESTRUCTIVE testing method accurately measures the corona level of the entire cable. This extra step in Rome Cable's standard manufacturing procedure was developed by Rome engineers and was first described in AIEE paper 48-198, "The Measurement and Investigation of Ionization Level of Rubber Insulated Cables," presented in August, 1948. A copy is yours for the asking —check and fill in slip below.

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PLUS THIS HANDY WRENCH, exclusive with UNION, supplied with all sockets, one wrench per carton at no extra cost. Molded of eye catching red plastic.
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UNION INSULATING COMPANY
PARKERSBURG, WEST VIRGINIA

Streuby L. Drumm, vice-president of **New Orleans Public Service, Inc.,** and head of this firm's Industrial Engineering and Utilization Department, has resigned to accept the position of executive vice-president of the West Penn Power Co., Pittsburgh, Pa. He has already assumed the duties of this new position. **E. N. Avegno,** Public Service dealer sales manager, has been named acting head of the Industrial Engineering and Utilization Department.

Mr. Drumm, a graduate of the U. S. Naval Academy, served in both World Wars. In World War II he attained the rank of Captain, U. S. Naval Reserve.

His entire business life has been in the utility field. He originally joined the Phoenix Utility Co., in 1923, as an assistant electrical engineer, before he became associated with New Orleans Public Service.

At the Louisiana utility, in 1934, he became residential sales manager. In 1939, he became industrial and commercial sales manager, and, in 1940, he was appointed general sales manager. He was elected a vice-president of the company in 1949.

Miles Cary has been appointed operating manager of the **Virginia Electric and Power Co.,** Richmond. He was formerly manager of system operation for Vepco.

At the same time, the company made several organizational changes in its system operating department. The new appointments were:

R. M. Hutcheson, system manager—production; **J. A. Rawls,** system manager—transmission and distribution; **T. E. Crossan,** system superintendent—production; **John McGurn,** system superintendent—power supply, **T. S. Martin,** system superintendent—transmission, and **Robert L. Ware,** system superintendent — distribution.

Mr. Cary attended Virginia Military Institute and the Massachusetts Institute of Technology where he received his bachelor of science degree in mechanical engineering. He joined Vepco in 1926.

Samuel B. Williams, assistant to the chairman of the board of directors of **Sylvania Electric Products, Inc.,** has retired.

Before he joined Sylvania's lighting sales organization in 1947, Mr. Williams was widely known in the electrical manufacturing and public utility fields as an editor of electrical publications.

In 1949, Mr. Williams was appointed Sylvania's director of public relations. In 1952, he became assistant to the president, who then was Don G. Mitchell, and when Mr. Mitchell was elected chairman a year later, Mr. Williams became assistant to the chairman.

Mr. Williams plans to live in

BULLDOG UNIT-VERSAL SWITCHBOARD

Switch units in the Unit-Versal Switchboard use BullDog's exclusive Vacu-Break arcing chamber that prevents dangerous arcs, and the patented Clampmatic Contacts that hold tight as a bolted connection. Interchangeable switches and circuit breakers available in sizes from 15 to 600 amperes.

always room for one more

Provide the performance and protection needed *today*, the flexibility needed *tomorrow*, in one compact, low-cost switchboard. BullDog Unit-Versal Vacu-Break Switchboards are engineered to exact specifications—adapt or expand swiftly to fit changing power requirements.

Only a screw driver and a crescent wrench are needed to assemble, install, extend or convert these modern switchboards. Removable front plates (shown above) provide quick access to wire gutters; louver plates permit bus bars to be extended and connected easily.

BullDog's famous Vacu-Break Switch Units provide extra-safe "quick-make, quick-break" protection. Furthermore, ample space can be provided for additional switches, breakers, meters, transformers, motor controls or any other special equipment that may be needed.

Get complete details on this amazing switchboard. Write BullDog Electric Products Company, Detroit 32, Michigan. *Export Division:* 13 E. 40th Street, New York 16, New York; *In Canada:* BullDog Electric Products Co. (Canada) Ltd., 80 Clayson Road, Toronto 15, Ontario. ©BEPCO

A Division of I-T-E Circuit Breaker Company

BULLDOG

THOROUGHBRED IN ELECTRICAL EQUIPMENT

ELECTRIC PRODUCTS COMPANY

CONSULT THE FOLLOWING SOUTHERN REPRESENTATIVES:

Wilson Electrical Equipment Co., 2930 Commerce St., P.O. Box 1725, Houston, Tex.; 101 E. Maple St., San Antonio, Tex. • Walker Electrical Co., Inc., 70 Bennett St., N.W., P.O. Box 8, Station D, Atlanta, Ga. • Standard Electric Mfg. Co., 2401 Federal St., Dallas 1, Tex. • F. E. Bender Co., 2000 E. 7th Place, Tulsa, Okla.

A new high in Sales Appeal and Sales Promotion...

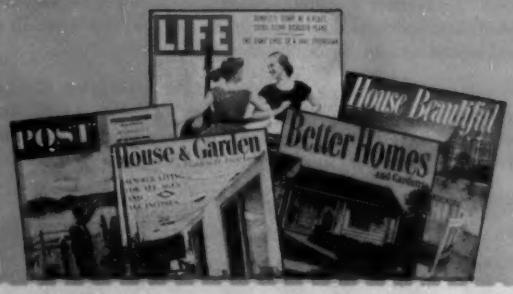
NEW MOE Light® DECORATOR FIXTURES

- More beautiful than ever
- New Plastic Bubble Fixtures
- New easy to install Portables
- The Effective Sales Approach of *"Inspiration-Lighting"*†
- All Out Promotion
- Pricing That Assures Big Volume

†(a combination of general, localized and accent lighting)

The new Moe Light Decorator line is loaded with sell. It's the *one* line that blankets *all* the wants of the big mass market. There's a *style* to suit every taste, a variety to meet every need, a *price* to fit every budget. It's a tremendous opportunity for Fall selling.

Millions will read about them and want them



Over 19,000,000 consumers will see Moe Light fixtures prominently featured in the impressive SATURDAY EVENING POST "Showhouse" promotion—a hard hitting, full color, two page spread.

In addition, over 35 million people will see a host of Moe Light ads in such purchase influencing publications as LIFE, HOUSE AND GARDEN, BETTER HOMES AND GARDENS, HOUSE BEAUTIFUL, and others. You can be assured of increased demand, easier sales and bigger profits.

*Prices slightly higher Denver and west

MOE LIGHT, Fort Atkinson, Wisc., Dept. ES-1054
Gentlemen: I am enclosing 10¢. Please send me folder 241 showing the complete line of Moe Light Decorator Fixtures.

Name_____

Address_____

City_____ Zone____ State_____

Get set for BIG fall sales...

MOE LIGHT, Fort Atkinson, Wisconsin
(DIVISION OF THOMAS INDUSTRIES, INC.)

Plants at Fort Atkinson and Sheboygan, Wisconsin, Princeton, Kentucky and Los Angeles, California — Originators of *Inspiration-Lighting*

Jamestown, R. I., where he will establish a consultation practice in corporate management and public relations.

H. C. McDaniel has been appointed manager of technical information for **Westinghouse Electric Corp.**, it was announced recently by **Dale McFeatters**, vice-president in charge of information services.

Mr. McDaniel, formerly manager of technical publicity, now will supervise both the technical publicity operations and the Westinghouse Engineer magazine. He replaces **C. A. Scarlott**, former technical information manager and editor of the Engineer, who has resigned to accept the position of manager of technical information services at the Stanford Research Institute, Palo Alto, Calif.

A native of North Bend, Ore., Mr. McDaniel was graduated from Oregon State College in 1926. He joined Westinghouse in 1939 as a commercial engineer at the company's lamp division in Bloomfield, N. J. In 1943 he was assigned to the technical information office in Pittsburgh, and became manager of technical publicity in 1948.

Named editor of the Westinghouse Engineer is **R. W. Dodge**, former managing editor.

Free bulletins

available to our readers

Bulletin 2510-A, which describes the **"Auto-Off-Hand" selector switch**, has been announced as available from **Square D Co.**, 4041 N. Richards St., Milwaukee 12, Wis. The Auto-Off-Hand is a selector switch and fractional hp manual starter in a single, compact, diecast enclosure, which permits remote control from a thermostat, or local control.

For your free copy, circle number B1001 *on the coupon on page* 112.

Pittsburgh Reflector Co., 405 Oliver Bldg., Pittsburgh 22, Pa., has issued another of its series of comprehensive bulletins covering lighting equipment. The newest bulletin, "E," titled **"Pittsburgh Permaflector Luminaires and Wall Urns,"** gives complete data on where and when to use various types of luminaires.

Four distinct types of luminaires are covered: (1) totally indirect, (2) indirect with illuminated bowl, (3) indirect with minor direct lighting component, (4) direct with illuminated bowls. Complete data is also provided on wattages, lamp sizes, dimensions, application suggestions and other pertinent information on luminaires and urns. Detailed engineering data, together with photographs of each type of unit, make it simple to specify the correct luminaires and wall urns required for illuminating offices, public buildings, stores, institutions and other applications requiring incandescent illumination.

For your free copy, circle number B1002 *on the coupon on page* 112.

A copy of their Technical Bulletin No. 4, which gives complete information concerning their line of **motor starting current relays** is available from **Lewus Electric Co.**, 1254 West Harrison St., Chicago 7, Ill. Lewus manufactures relays in six coil sizes, featuring a new variable magnetic phase shift within the relay coil, for motors from ⅛ to 5 hp.

For your free copy, circle number B1003 *on the coupon on page* 112.

Four new catalog sheets which describe, illustrate and give prices of their new line of **outdoor and garden lighting fixtures**, have been announced as available from the **Teal Corp.**, Irvington, N. J.

For your free copy, circle number B1004 *on the coupon on page* 112.

A free engineering specification data sheet, giving complete technical details about their new No. C-824 **corridor lighting luminaire**, is offered by the **Holophane Co., Inc.**, 342 Madison Ave., New York 17, N. Y.

For your free copy, circle number B1005 *on the coupon on page* 112.

A folder describing **Columbia-UF**, underground feeder and branch circuit cable for use in wet, damp, or corrosive locations, is available from the manufacturer, Columbia Cable & Electric Corp., 225 Chestnut St., Brooklyn 8, N. Y.

For your free copy, circle number B1006 *on the coupon on page* 112.

A new 24-page, three-color publication describing the features of **distribution transformers** has been announced as available by the **General Electric Co.**, Schenectady 5, N. Y.

Covered are the design features, advantages of impulse testing, nitrile rubber gaskets, Strenicor terminal

for quality and beauty—install ARTOLIER

for customer satisfaction—suggest ARTOLIER

for quick turnover—stock ARTOLIER

DISTINCTIVE

INDOOR AND OUTDOOR

LANTERNS

AND POST LANTERNS

for every architectural style

Just compare the *name* . . . the *quality* . . . the *design* . . . the *price* . . . and you'll agree that ARTOLIER leads the finer lantern field from coast to coast.

Backed by more than 40 years experience in home lighting, these fast-selling, always-in-demand indoor and outdoor lanterns are authentically designed to blend into the styling of every type of home.

Remember . . . there is no substitute for success—that's why it pays to stock, display and sell the incomparable ARTOLIER line

Send for your catalog today.

ARTOLIER CORP. • LODI, N. J.

Porcelain Products' service mast KIT

Everything furnished

but the house and conduit

for

Ranch type homes

Available Now!—a Service Entrance Mast kit complete to every detail—including roof flashing. Even necessary bolts, nuts, lag screws, and nails. These articles make up the new Porcelain Products' service mast kit that you'll put up and forget. All components of the kit can be *installed by an electrician, with electricians' tools.*

Here is a list of the parts:

- √ 1¼" UL approved Service Entrance Cap
- √ 1¼" to 2" Bell Reducer to adapt service cap to conduit
- √ Galvanized Roof Flashing and Storm Collar
- √ Roof Mounting Plate of new and original design
- √ Conduit hanger with 2¼" lag screw attached
- √ Slip-fitting offset reducer with interior grounding device
- √ All necessary bolts, nuts, lag screws and nails
- √ *Plus*—Porcelain Products famous 2061-C Pipe Mounting house brackets as specified.

Write for details today!

60 years **Porcelain Products, Inc.** PP INC
FINDLAY, OHIO

clamps, clamp-type H-V connectors, bushing terminals which handle both aluminum and copper conductors, one-piece cover bands, Thyrite Magne-Valve arresters, Super Melaglyp paint, and G-E Spirakore construction.

Designated GEA-6070, the booklet includes cutaways, cross-sections, graphs, diagrams, actual-size photos, and large three-color pictures of the numerous features.

For your free copy, circle number B1007 *on the coupon on page* 112.

A new 16-page general catalog and parts list, describing the various parts employed for the erection of **Advance tubular steel scaffold and materials hoisting towers,** is offered to interested readers by the **Advance Scaffold Division,** Beaver Art Metal Corp., Ellwood City, Pa.

For your free copy, circle number B1008 *on the coupon on page* 112.

Copies of Bulletin UA-530, a four-page publication describing "Sealtite" **flexible liquid-tight electrical wiring conduit,** first of its kind to gain UL approval for use in wet locations, are available on request to the **American Brass Co.,** American Metal Hose Branch, 692 Main St., Waterbury, Conn.

For your free copy, circle number B1009 *on the coupon on page* 112.

The Electro Dynamic Motor Generator Division of the General Dynamics Corp., Bayonne, N. J., has just published a report on **comparative tests of different brands of electric motors.** All tests were conducted in accordance with AIEE standards and the principal tests were witnessed by J. Arthur Balmford, professor of electrical engineering at a leading eastern university.

Information is presented in tabular form for engineering performance, comparison and in visual color charts as to what the results prove in relation to use.

For your free copy, circle number B1010 *on the coupon on page* 112.

A completely revised, up-to-date edition of **General Electric's remote-control wiring manual,** No. 16-284, has been announced by the company's Construction Materials Division, Bridgeport 2, Conn.

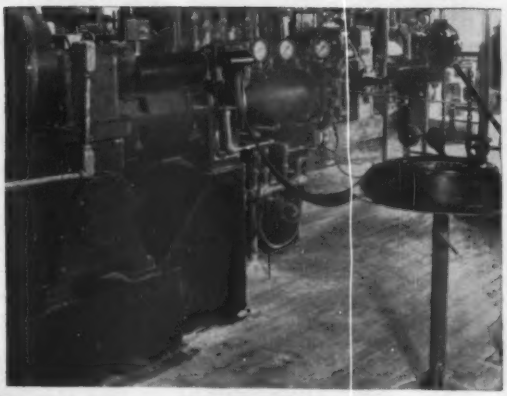
The new manual includes the new components recently added to the remote-control line, such as the relay gang boxes; motor-driven master switch known as the "Circuit Servant"; and new locking switches, both flush and surface types; and the new twisted construction, color-coded remote-control wire.

The book contains complete technical and installation data on this modern low-voltage system of wir-

CAROL FLEXIBLE CORDS ARE BUILT BETTER TO LAST LONGER

We know what a portable cord has to go through in service. So we build life and durability into Carol Cords—by giving them the best in materials and workmanship. Here's just a part of the quality story behind Carol wire and cable:

Laboratory control constantly protects the uniformity of specially compounded Carol insulation.



Modern production methods, like this continuous vulcanizer, transform highest grade materials into precision-made cable products.

Write to us today for our complete catalog, listing Carol Portable Cords and other wire and cable for electrical, electronic and welding applications.

Carol Flexible Cords are made of stranded conductors of soft annealed copper, paper served and individually insulated with rubber compound. Conductors are cabled with cushioning jute to perfect roundness, and jacketed in tough Caroprene® or rubber. 2, 3, and 4 conductors, 18 to 10 AWG.

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Rugged HUBBELL Twist-Lock

No. 7313 CONNECTOR BODY

FIRST AND STILL THE FINEST BECAUSE . . .

No. 7311 CAP

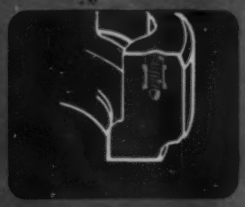
Do it better . . .
Do it electrically!

National Electrical Week, Oct. 18-24

For greater Convenience, Safety, and Efficiency in the operation of motor-driven tools or portable electrical apparatus. The locking action insures positive contact in spite of rough treatment, heavy vibration, and other conditions that might cause down-time. Available in two-wire, three-wire and four-wire sizes. Three and four-wire sizes available grounded and not grounded.

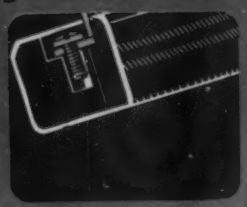
Heavy Duty Construction

SOLID BRASS MOLDED-IN INSERTS HOLD CONNECTOR BODY TOGETHER SECURELY



Trouble-Free Wiring

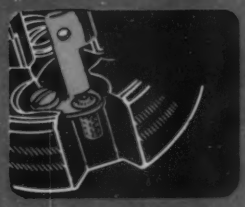
UPSET BINDING SCREWS CAN'T COME OUT!



"Bed-Rock" Blade Stability

BLADES SOLIDLY ANCHORED WITH MOLDED-IN KNURLED RIVETS

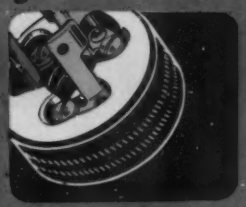
LARGER SPUN-OVER AREA



"Speed-Easy" Wiring Convenience

HEAVIER SCREWS LARGER BINDING HEADS

TERMINALS RECESSED IN CAP FOR EXTRA WIRING ROOM



Armour Plate Protection

RUGGED STEEL ARMOUR PLATE SHELL FOR MAXIMUM PROTECTION AGAINST BREAKAGE

Adjustable Cord Grip

ADJUSTABLE, STOUT HOLD-TITE CORD GRIPS TAKE STRAIN FROM BINDING SCREWS

Highest Grade HEAVY DUTY WIRING HUBBELL DEVICES

Dept. R-2

HARVEY HUBBELL, INC., BRIDGEPORT, CONNECTICUT

26HH84

ing, and is intended for use by architects, electrical engineers and contractors, and for builder-developers. Wiring diagrams, wiring layouts, suggested specifications, and much other useful information is included.

For your free copy, circle number B1011 *on the coupon on page* 112.

Smithcraft Lighting Division, Chelsea 50, Mass. has just released a new 44-page **price catalog.** Because of its combination of complete pricing data, photographic illustrations and condensed catalog information, the catalog makes it simple, from this one source, to select and price any fluorescent fixture for any lighting purpose without reference to individual specification sheets, folders, etc.

The new price catalog includes fixtures with metal or plastic louvers, metal or plastic sides, plastic refractors, plastic polycraft dishes, and many other design developments which permit an unusual flexibility of selection.

For your free copy, circle number B1012 *on the coupon on page* 112.

Ettco Wire and Cable Corp., 4650 Metropolitan Ave., Brooklyn 37, N. Y., has announced completion of its new comprehensive 24-page illustrated catalog of **Ettco wire, cable, and metal conduit.** The catalog contains complete specifications for bushed armored cable, armored leaded cable, bare armored ground wire, flexible steel conduit, nonmetallic sheathed cable (types NM and UF), TW building wire, service entrance cable, and drop cable. It provides, in addition, National Electrical Code requirements and valuable statistical tables.

For your free copy, circle number B1013 *on the coupon on page* 112.

A report prepared by Ebasco Services at the request of Pole Sprayers, Inc., and the **Utilities Division, Osmose Wood Preserving Company of America, Inc.,** 980 Ellicott St., Buffalo, N. Y., has been announced. Called **"Treatment of Poles in Place,"** the report gives information on how data can be worked out for groundline inspection and treating, above-ground spraying with penta, or both.

For your free copy, circle number B1014 *on the coupon on page* 112.

The Yale battery connector, which may be used for currents up to 175 amperes and voltages to 110, is pictured and described in Bulletin 1518A published by the **Yale & Towne Manufacturing Co.,** 11000 Roosevelt Blvd., Philadelphia 15, Pa.

This connector is designed for use both on the equipment and in the charging rooms where light or medium currents are required. It was constructed to withstand the severe

Two Ways To Improve Your Next Explosion-Proof Installation!

KILLARK

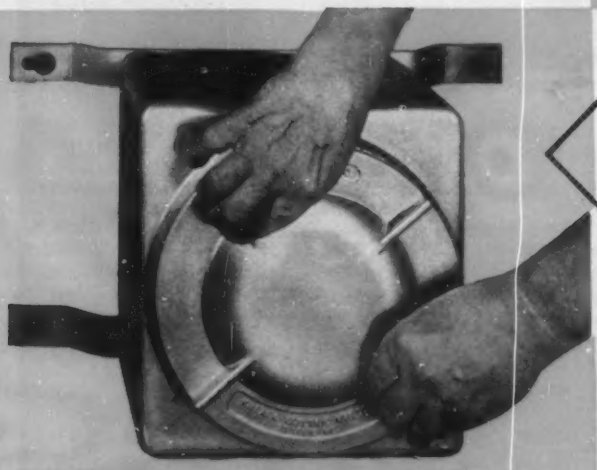
Flexible Couplings

. . . for safer wiring in vibration areas

If you're hanging explosion-proof fixtures in an area of excessive vibration, or if you're installing motors that vibrate — then you need Killark Flexible Couplings for the job. They're explosion-proof, won't shake loose, are U. L. approved.

- Base and fittings of solid brass.
- All combinations of hubs.
- Conduit diameter from ½" to 2"— *any* length.

We will make up the particular coupling you want — and get it off to you quickly. Remember, where vibration is worst, Killark Flexible Couplings are *best!*



KILLARK

GRH Series Explosion-Proof Junction Boxes

. . . for easier wiring on *big* jobs

Available in big, roomy sizes — up to 11"x12"x7½"—but light in weight. That's because they're made of Killark's exclusive Alumalloy, the 20th century metal. Large 9⅛" cover opening allows plenty of convenient hand room for easier wire splicing. Hubs from ½" to 4"— in any position you desire.

XJB
Extra Large Fitting
With bolted cover (26½" x 14⅓" x 8") is now available — with hubs in any position.

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	Chicago	1528 West Adams St.	Los Angeles	412 Seaton St.	Seattle	4130 First Avenue South
SALES OFFICES	Baltimore	11 W. 25th St.	Columbus	2700 E. Main St.	Minneapolis	826 Andrus Bldg.
	Cincinnati	49 Central Ave.	Kansas City, Mo.	616 W. 26th St.	New York	600 W. 181 St.

here's why GrateLite* is great!

eye comfort you can measure
300 F.C. with only
1.11 C.P./Sq. In. Brightness

and here are the figures to prove it . . .

Foot-Candles, Efficiencies, Brightness Readings

In our own showrooms we've installed a 15' x 16' GrateLite Ceiling. By switching on various lamp arrangements we can deliver from 28 to 300 foot-candles 7' 9" below the GrateLites. Measurements at right give GrateLite efficiency figures and brightness readings at 30° and 45° below the ceiling.

THESE FIGURES PROVE GRATELITE in a class by itself for modern high intensities, safely within comfort ranges plus a high degree of diffusion.

AREA: *15' x 16' (240 Sq. Ft.)*
GRATELITES: *Suspended 18" below ceiling*
FT.-CANDLES: *Taken 7' 9" below GrateLite*
BRIGHTNESS READINGS: *Taken with Electronic Meter*
LUMINAIRES: *Guth M-5385/TO*
ROOM COLORS: *3 walls—light green—80% R. F. Floor—15% R. F.*

Lamp Mix	No. of 8' Lamps H.O. R.H. A	Total Lamp Watts	Foot-Candles With GrateLites	Foot-Candles Less Less	Eff. With+ Without	Brightness At 30° F. L.*	Brightness At 30° C. P. J. Per Sq. In.	Brightness At 45° F. L.*	Brightness At 45° C. P. J. Per Sq. In.
1	8 @ 200	400W	28	30	93%	50	0.11	50	0.11
2	16 @ 200	800W	50	70	71%	110	0.22	110	0.24
3	24 @ 200	1200W	85	100	79%	130	0.28	140	0.31
4	32 @ 430	1800W	135	170	79%	195	0.43	210	0.48
5	8 @ 200 24 @ 430	2360W	183	280	82%	230	0.51	250	0.55
6	16 @ 200 24 @ 430	2800W	195	285	83%	250	0.54	350	0.77
7	24 @ 200 24 @ 430	3360W	210	265	81%	320	0.71	350	0.77
8	48 @ 430	3840W	245	310	77%	380	0.84	530	1.15
9	8 @ 200 40 @ 430	4080W	265	340	78%	410	0.91	570	1.25
10	16 @ 200 48 @ 430	4480W	285	380	75%	470	1.04	650	1.37
11	24 @ 200 48 @ 430	4880W	300	390	77%	500	1.11	850	1.43

*F. L.—Foot Lumens †C. P.—Candlepower *U. S. Pat. Pend. Trademark Registered

It's all in the sight-saving cubes—and only GrateLite has them!

Send for free booklet "The GrateLite Story" Also "Glare Posters" and "Visual Comfort Indexes".

Guth

EDWIN F. GUTH CO. • ST. LOUIS 3, MO.

Leaders in Lighting since 1902

mechanical abuse that is required of any electrical connector.

Dimensions and lists of complete Yale connectors and parts are included in the bulletin.

For your free copy, circle number B1015 *on the coupon on page* 112.

Anaconda Wire & Cable Co., 25 Broadway, New York 4, N. Y., has just issued a new addition to Section 13 of its general catalog under the title **Soldersealed Potheads.** It is indexed as 1330, a subsection of Section 13 having the general title, Potheads and Terminals. It is also available as a separate catalog. Ask for publication number C-79-1330.

Anaconda's soldersealed line has been added since issuance of the General Catalog (No. C-79). The new line offers cable users another source of gasketless potheads.

For your free copy, circle number B1016 *on the coupon on page* 112.

A new 20-page brochure (Catalog No. 132) on **load center transformers** has been published by **R. E. Uptegraff Manufacturing Co.**, Scottdale, Pa. These transformers are made in ratings up to 2500 KVA and are designed for use as near as possible to the center of the load, thereby minimizing costly low-voltage runs and improving power characteristics.

Feature of the brochure is a system of charts which simplifies determining the exact weights, dimensions and performance data for any desired KVA rating—and with any combination of auxiliary equipment.

For your free copy, circle number B1017 *on the coupon on page* 112.

A new multi-color booklet illustrating the 20 **principal types of improved U. S. motors** has just come off the press. The illustrations are in natural color and include the following types — Uniclosed, Totally-Enclosed, Explosion-Proof with and without fan, Varidrive, Syncrogear, combination variable speed and internally geared units, Right-Angle Worm Gear, Verticlosed Hollowshaft, Vertical Solid Shaft, Tests Stands and Aircraft. Cut-open views of Varidrive and Syncrogear types are shown in full color. This new and highly interesting booklet may be obtained by writing to **U. S. Electrical Motors, Inc.**, Box 2058, Los Angeles 54, Calif. Ask for booklet 1878.

For your free copy, circle number B1018 *on the coupon on page* 112.

Now available on request from **Sola Electric Co.**, 4633 W. 16th St., Chicago 50, Ill., are most recent specifications on **Sola Constant Wattage Mercury Vapor Lamp Transformers** for outdoor industrial and commercial use. Bulletin No. MV-208 is divided into three sections: General Characteristics, Performance, and Specifications.

Section on Performance contains chart, curves and oscillograms comparing regulated and unregulated mercury vapor lamp ballasts. Specifications section contains dimensional diagram and connection diagrams plus descriptions of mounting methods and mechanical features. Folder is four pages in black and white and pre-punched for easy binder insertion.

For your free copy, circle number B1019 *on the coupon on page* 112.

How to increase a feeder's length or load carrying ability, gain revenue and reduce customer's complaints is explained in a new booklet entitled **"Effective Bandwidth."** Designated as GED-2235, this new 20-page, two-color publication uses simple diagrams and examples to explain how to gain these practical benefits.

Essentially a discussion of how feeder voltage regulators with Class I Control Accuracy reduce the feeder's effective bandwidth, this bulletin is available from the **General Electric Co.**, Schenectady 5, N. Y.

For your free copy, circle number B1020 *on the coupon on page* 112.

A new catalog on their line of **built-in lighting fixtures** is available from the **Kirlin Co.**, 3435 East Jefferson Ave., Detroit 7, Mich. The Kirlin catalog contains a complete outline of technical calculations, as well as photos of dozens of beautiful installations.

For your free copy, circle number B1021 *on the coupon on page* 112.

Tensolite Insulated Wire Co., Inc., Tarrytown, N. Y., specialists in miniaturization and flexibility, have announced their new catalog, which

(*Continued on page* 98)

Technical books

for the electrical man

Christmas Lighting and Decorating for the Home

By Theodore Saros, D. Van Nostrand Co., Inc., 250 Fourth Ave., New York 3, N. Y., 160 pages, over 100 illustrations, $1.95.

Here is a book that could very well lead to additional Christmas lighting jobs and profits for electrical contractors. Each page is a storehouse of ideas and suggestions for preparing home Christmas lighting arrangements and decorations both indoors and outdoors.

The first part of the book tells what materials and equipment to use and covers the principles of good design and effective outdoor lighting for proper spotlighting, floodlighting and treelighting. Included are details on easy-to-make outdoor displays such as Santa and his Reindeer, lighted candles, bells and stars. Along with the accurate descriptions and diagrams for these projects are numerous ideas on how to use them in an outdoor Christmas setting, thoroughly discussed and illustrated.

In many parts of the country prizes are offered in Christmas lighting contests and many tips to help you, or your customer, to win are given in this volume.

Indoor decorations, including basic information on materials, equipment, design and lighting procedure are also well covered. An entire chapter is devoted to the Christmas tree, its lighting and decoration.

General Electricity

By E. W. Jones, McKnight & McKnight Publishing Co., Market and Center Sts., Bloomington, Ill., 120 pages, paper cover, $1.25.

This general course in electricity, written by E. W. Jones, associate professor of physical science, emeritus, Kansas State Teachers College, Pittsburg, Kansas, is intended to provide an elementary text and experiment guide for the beginner in the electrical field.

It is written in a simple and direct manner; not technical and not limited to one or two small phases of the subject. It gives a practical working knowledge of common, everyday electricity. To do this, it presents and explains the fundamental, basic principles of electricity and magnetism; the operation, care, and upkeep of the common consuming devices; and the ordinary rules of safety.

The book also furnishes some insight into electrical occupations and gives a better appreciation of the services rendered by workers in this important field. Specific references are given to good books and pamphlets, so that further study of a topic can be made if desired.

Does this *Watt-hog* with his dim and dirty face root you out of good light and decent maintenance economy? Not if you follow the suggestions in the *Champion Maintenance Manual** and make a practice of buying the right lamps —efficient, long-lasting *Champion Lamps.*

**Your name and company address on a postcard will bring you a free copy by return mail.*

CHAMPION LAMP WORKS

602 Broad Street, Lynn, Massachusetts

CHAMPION lamps

(*Continued from page 97*)
features illustrations and descriptive information on their lines of **miniature and sub-miniature wire and cable.** This firm's facilities are devoted exclusively to the engineering and manufacture of miniature insulated stranded wires and tensils.

For your free copy, circle number B1022 *on the coupon on page* 112.

Federal Pacific Electric Co., 50 Paris St., Newark, N. J., is distributing a new **Service Equipment Bulletin** carrying a complete listing of the Federal Noark line of fusible service equipment — 30 through 6000 amperes. The bulletin contains illustrations and descriptions of the equipment. Diagrams are included, showing typical wiring, and knockout locations for each catalog number.

For your free copy, circle number B1023 *on the coupon on page* 112.

The new 22-page T&B Bulletin 71 is an informative, single reference that covers the company's new, complete line of **electrical distribution and service connectors.** Published by the **Thomas & Betts Co.,** Elizabeth, N. J., the catalog is of special value to utility purchasing agents, engineers, line foremen and other operating personnel. Pages are bound loose-leaf style for convenience.

For your free copy, circle number B1024 *on the coupon on page* 112.

A new catalog illustrating and describing their new line of **recessed fixtures utilizing Holophane Controlens** has been announced by **Marvin Manufacturing Co.,** 1826 N. Sheffield Ave., Chicago, Ill. This catalog, available without charge, has been designed to fill all of the needs of the electrical engineer and to give him not only the important technical information, but also good visual presentation of the actual units.

For your free copy, circle number B1025 *on the coupon on page* 112.

A new 16-page, illustrated catalog, Number 102, giving complete descriptive information and prices on their rapidly expanding line of PECO **electrical conduit fittings,** is available without charge from **Producto Electric Co.,** 932 Rogers Place, New York 59, N. Y.

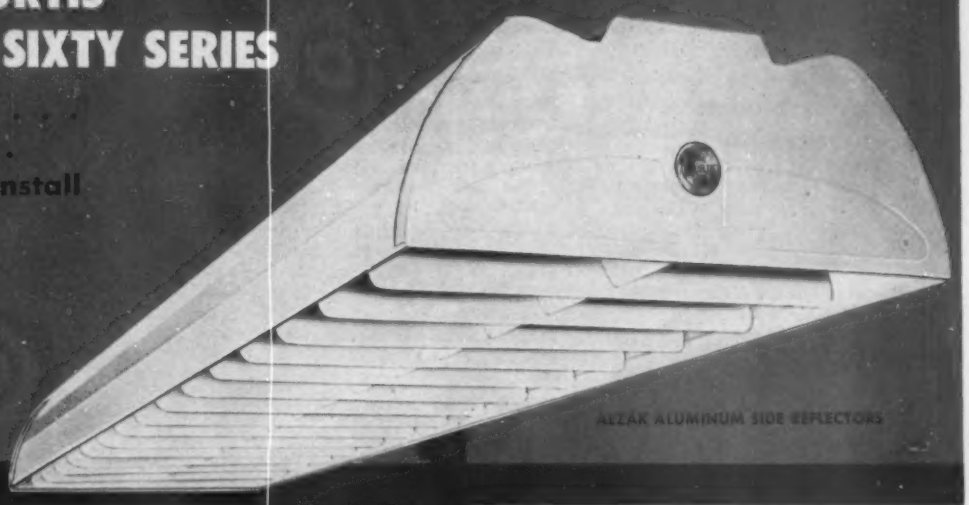
For your free copy, circle number B1026 *on the coupon on page* 112.

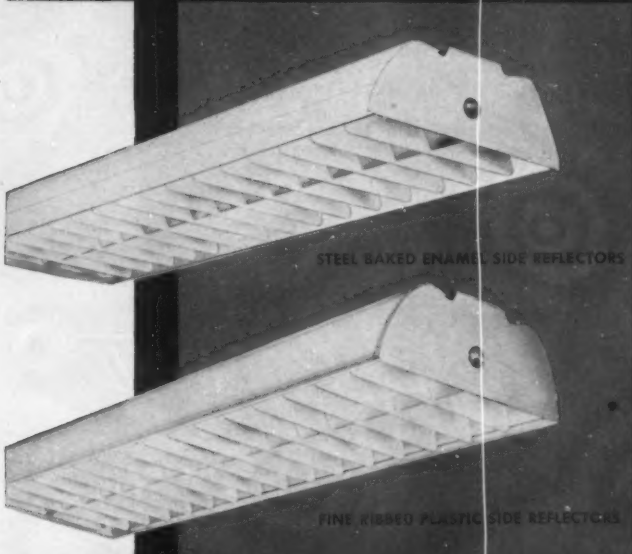
A copy of a 12-page, two-color, fully-illustrated bulletin, ES-54, describing their new **simplified stage lighting** system for elementary schools is available upon request to **Hub Electric Co.,** 2255 W. Grand Ave., Chicago 12, Ill.

For your free copy, circle number B1027 *on the coupon on page* 112.

NEW CURTIS FORTY-SIXTY SERIES

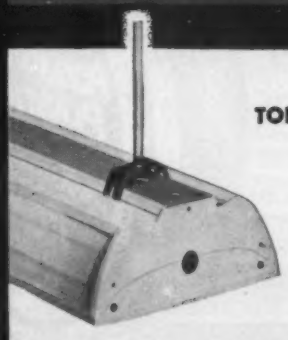
Shallower . . .
wider . . .
easier to install





NOW AVAILABLE
FOR ALL 4 - 5 AND 8 FOOT
RAPID START, SLIMLINE
STARTER AND LOW BRIGHTNESS LAMPS

America's most famous line of fluorescent luminaires has been redesigned to give you more than 100 separate and distinct units. The new Curtis Forty-Sixty Series provides excellent general illumination for schools, offices, stores and other commercial interiors. These low-brightness units direct 40% of the light upwards and 60% to the working plane. They also offer a choice of shielding angles for the direct component. Available with Alzak aluminum, steel baked-white enamel and plastic sides. Now, more than ever before, there is a Curtis Forty-Sixty applicable to your next lighting job.



TONG HANGERS

Curtis Tong Hangers facilitate and cut installation cost. Use of Tong Hangers allows considerable flexibility in placement of hangers and permits by-passing of building construction obstacles such as beams, sprinkler heads, etc.

Write for illustrated literature.

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CITY _____ STATE _____

CURTIS LIGHTING, INC.

6135 WEST 65TH STREET
CHICAGO 38, ILLINOIS

New products

(For more information, use coupon on page 112)

Sylvania 'Sono-Lume' reduces room noise

REDUCTION OF ROOM NOISE plus high level illumination, a combination formerly requiring two separate installations, now can be provided by the less costly single installation of the new "Sono-Lume"

fluorescent lighting fixtures, it is announced by Lighting Division, Sylvania Electric Products, Inc., 1740 Broadway, New York 19, N. Y. Introduced recently, the fixtures are described as having "a sound-conditioning system built-in."

The new fixture's sound control element consists of perforated steel wings behind which are installed blankets of preformed glass fibers. Based on acoustic laboratory tests, each four-foot unit absorbs as much sound as ten square feet of a ceiling sound-proofed with material having the same noise reduction rating as the newly introduced fixture. To assure maximum sound absorption they should be installed in continuous rows only.

"Sono-Lume" fixtures are available in four- or eight-foot lengths, with either all plastic shielding for complete diffuse illumination or a louver assembly having a 35-degree crosswise and 45-degree lengthwise shielding. All light reflecting metal surfaces are treated and finished to assure minimum reflectance of 86 per cent.

Fixtures are surface mounted to the ceiling with the two mounting brackets furnished and fastened in rows for continuous wiring, thus further reducing installation costs. They use preheat, instant or rapid start series ballasts.

For additional data, circle item 1028 on the coupon on page 112.

Hub offers simplified stage lighting system

THE CONSTANTLY INCREASING importance of creative dramatics and children's theatre activities in the elementary school brings into sharp

focus the chronic lack of adequate stagelighting that handicaps these activities, states Hub Electric Co., 2255 W. Grand Ave., Chicago 12, Ill. Hub, however, has investigated this old problem thoroughly and has re-

nothing succeeds like ... Quality

PLYMOUTH TAPES

SOLD ONLY THROUGH RECOGNIZED WHOLESALERS

The World's Largest Selling FRICTION TAPE • The World's Finest PLASTIC ELECTRICAL TAPE

PLYMOUTH RUBBER COMPANY, INC.
Since 1896
CANTON, MASSACHUSETTS

Reduce brightness contrasts . . .
get efficient, over-all lighting with SYLVANIA'S

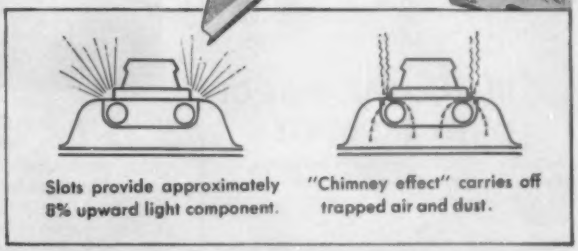
ALL-WHITE SLOTTED REFLECTORS!

Now Sylvania introduces the Slotted Reflector . . . an improved industrial lighting design that results in far more efficient lighting *plus* lower maintenance costs!

The warehouse photo, above, shows how Sylvania's new Slotted Reflectors reduce brightness contrast by throwing an upward component of approximately 8% on the white ceiling.

And, because these slots are located just above the lamps, they create a "chimney effect" . . . carry off air normally trapped inside the reflector. This action also tends to remove dust and dirt accumulations . . . helps maintain high lighting levels.

These units are now available in all-white Miracoat or baked enamel, with open or closed ends. For full dimensional data and all details write to Dept. 4X-2510, Sylvania now!



Slots provide approximately 8% upward light component.

"Chimney effect" carries off trapped air and dust.

SYLVANIA

2520 Oakville St., Alexandria, Va. • 660 Murphy Avenue, S. W., Atlanta, Ga.
100 Fordyce St., Dallas 2, Texas

LIGHTING • RADIO • ELECTRONICS • TELEVISION

Sylvania Electric Products Inc., 1740 Broadway, New York 19, N. Y.

Why Pay

FOR STARTER CAPACITY NEVER USED?

THE ANSWER TO THIS QUESTION COULD SAVE hard-earned dollars needlessly thrown away.

When choosing from the widest range of starters in the 1-50 hp range, you save by selecting the starter matched to the job—with no wasted capacity.

Furnas Electric starters—nine of them in the 1-50 hp range—are designed and built to match most applications.

Save 25% TODAY LIKE THIS

Here's an example of typical savings you can earn through proper starter selection: for 10 hp service, for example, you'd select Furnas Electric Type YE rated for the job. This saves you up to 25% on initial costs and 40% on space over a YF size 2 (rated 25 hp) normally selected for 10 hp service.

All of the nine Furnas Electric sizes offer worthwhile savings.

Important FEATURES

Furnas Electric starters give you these additional benefits. *Dual Voltage Coils*—matched to motor voltage. *Thermal Overload Protection. Shallow Case* for easy wiring. *Durability* to stand up under rough service. *Arc Resistant Terminal Board. Arc Quenching Silver Contacts.*

Complete RANGE OF OTHER PRODUCTS

Pressure switches for air and water applications. Drum controllers for reversing, multi-speed and reversing multi-speed service.

FURNAS
ELECTRIC
Batavia, Illinois

cently developed a new system of stage lighting for elementary schools, a system that compares favorably with that found on larger stages, yet is attainable with the severely limited budgets that may be available at elementary schools.

The Hub system offers the following advantages: A variety of lighting effects—subject to both switching and dimming controls; initial installation at minimum cost; expansibility with full utilization of original equipment; easy, convenient mounting facilities for lights and other stage equipment without damage to stage walls or ceiling; applicable to existing stages as well as new construction; cost may be shared through pooling of switchboards and lighting; and safe even when operated by untrained students.

For additional data, circle item 1029 *on the coupon on page* 112.

Champion Lamp Works offers bulb display

A NEW LIGHT BULB or combination bulb and fluorescent tube display has been developed by Champion Lamp Works, Lynn, Mass., to provide the necessary point-of-sale reminder for the consumer with empty sockets to fill.

Set up for bulbs alone the Champion merchandiser holds more than

525 of the popular sizes of incandescent bulbs, displaying the four lamp packages, two lamp sleeves and individual bulbs. Yet the entire unit requires only 20 x 25 inches of floor space and stands 67 inches high, including the three color metal sign at the top. It is of sturdy, one piece construction and can be set up in thirty seconds.

When it is desired to display fluorescent tubes as well as bulbs, side baskets are supplied and these hold 48 tubes, the baskets being 15½ inches high, 7¼ inches long and 18⅛ inches wide. Construction is all metal, light but sturdy and assembly requires no nuts, bolts or screws.

Two or more of these units can be quickly fastened together when a larger selling display is needed.

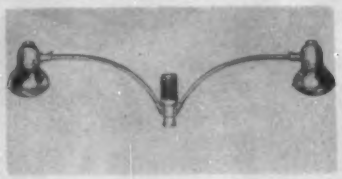
This practical merchandiser, in addition to its reminder value, encourages self service and permits quick checking and restocking of lamps.

For additional data, circle item 1030 *on the coupon on page* 112.

Nepo pole top adapter economical to install

MODERNIZATION of obsolete pole lighting equipment is easy and economical with the new pole top adapter system announced by Nepo Manufacturing Co., 6025 No. Keystone Ave., Chicago 30, Ill.

Designed to fit atop any standard two-inch to four-inch diameter pole,



this Nepo unit, made of special cast aluminum alloy and extruded aluminum arms, supports two mercury vapor transformers and two luminaires.

The unit is furnished complete with poles or for existing poles. Interchangeability of parts makes it possible to provide either a single arm unit or a twin unit from the same basic castings.

For additional data, circle item 1031 *on the coupon on page* 112.

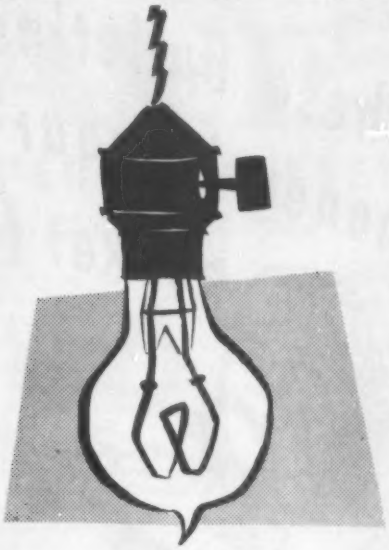
Markel recessed fixtures are screwless, detachable

A NEW LINE of recessed fixtures for homes and commercial installations has been announced by Markel Electric Products, Inc., 145 Seneca St., Buffalo 3, N. Y.

These new self-locking, screwless, detachable modern recessed fixtures are ready to install with ordinary house wiring. However, they are available with either pre-wired or unwired recess boxes. The pre-wired recessed boxes are ready to install to standard 60 degree wire; the unwired are ready to install to 125 degree to 150 degree AF wire. These fixtures are precision engineered and range in size for 60, 100 and 150 watt lamps.

Features include simple, speedy installation, adjustable all-position

Are you selling no more light than this?



Today's lighting installations, to give adequate light, require modern, efficient lighting equipment, utilizing present day light sources. Investigate . . .

Fluorescent by

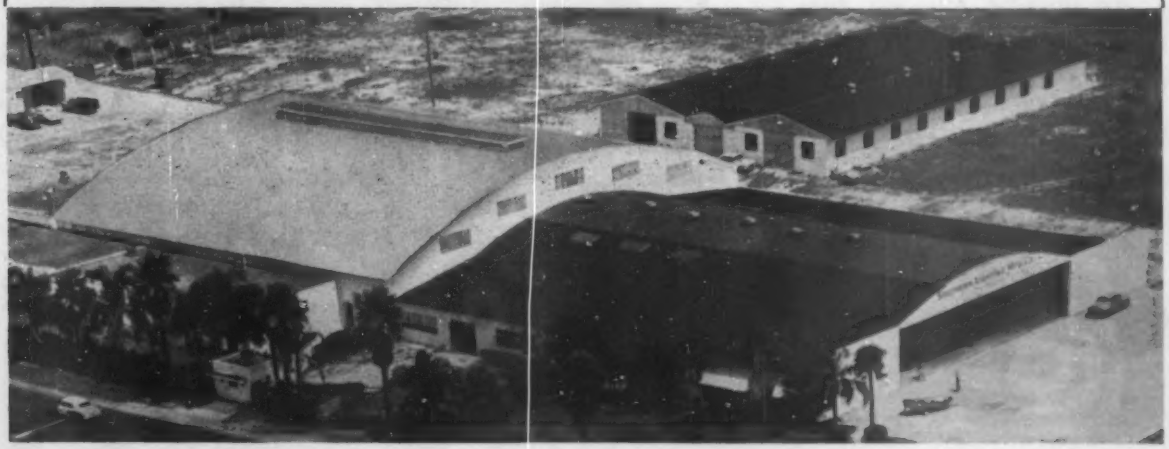
SOUTHERN LIGHTING MFG. CO.

ORLANDO FLORIDA

501 ELWELL STREET

Southern

*CATALOG ON REQUEST



These bulletins can mean money in your pocket!

Send for your copies Now!

Yes, when you send for these bulletins on popular "Buffalo" Fans, you are taking the first step to real profits! The brand-new line of "Buffalo" NV-Breezos, Heavy-Duty Propeller Fans and Belt-Air Fans have been selling even better than their predecessors which led the field for many years. They blanket a capacity range from 500 cfm to 250,000 cfm, enough for almost any ventilating application you could name. New Breez-Air Attic Fans and Breez-Pac Attic Fan Packages, and "E" Blowers-Exhausters will round out your line for a very profitable 1955. Write today — specifying Bulletins 3865, F3790, FM-10 and FM-900.

"Buffalo"

BUFFALO FORGE COMPANY

210 Mortimer St. • Buffalo, N. Y.

PUBLISHERS OF "FAN ENGINEERING" HANDBOOK

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

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PANEL BREEZO FANS
BREEZO-AIR ATTIC FANS
BELTED VENT SETS
"L" BREEZO FANS
BELT-AIR FANS
"NV" BREEZO FANS

hangers, smooth flush mounting, no need for special framing, and specially engineered light seal that eliminates light leakage.

The self-locking frames and glassware are individually packed. The standard finishes are polished chromium, high baked white enamel and polished brass. Other finishes are available on special order.

All Markel fixtures have the I.B.E.W., A.F.L. label, are approved by Underwriters Laboratories, Inc., and are unconditionally guaranteed for one year to be free from imperfection in materials and workmanship.

For additional data, circle item 1032 on the coupon on page 112.

Revere Electric redesigns narrow beam floodlights

THE REVERE No. 7140, 300-500 watt, and the No. 7190, 750-1000 watt lines have been redesigned using a one-piece aluminum housing casting providing simplicity of design and more efficient operation. This announcement was made recently by Revere Electric Manufacturing Co., 6009 Broadway, Chicago, Ill.

These units are completely weatherproof, the wire entering through a squeeze bushing. The narrow beam floodlights have a focusing mechanism. Available with clamp or five spring toggle hinged rings with clear, stippled, or ribbed lens for maximum light control, these units are for crossarm or pole top installation. Flat base and clamp mountings are available.

For additional data, circle item 1033 on the coupon on page 112.

Gibson fixture meets new school standard

GIBSON MANUFACTURING CO., 1919 Piedmont Circle, Atlanta, Ga., recently announced a new fixture designed especially to meet the new American School Standard. Designated the MP-45, this new unit has 45 degree by 45 degree shielding and is available two lite - 40 watt, two

SAVE

$64.25 PER 1000 FEET

with Kaiser Aluminum Triplex

As YOU SEE in the box below, when you switch from three open wire copper services to Kaiser Aluminum Triplex you save up to $64.25 per 1000 feet—based on reports from 10 utilities.*

You can be sure of getting the *maximum* savings from Kaiser Aluminum Triplex by taking full advantage of Kaiser Aluminum service. Experienced Kaiser Aluminum field engineers work with your crews right in the field where desired, demonstrate ways to speed installations and cut costs.

ACT NOW—as hundreds of power companies are doing! Convert to Kaiser Aluminum conductor easily, efficiently, economically—and save thousands of dollars a year. Contact any Kaiser Aluminum sales office listed in your telephone directory, or one of our many distributors. Kaiser Aluminum & Chemical Sales, Inc. General Sales Office, Palmolive Bldg., Chicago 11, Ill.; Executive Office, Kaiser Bldg., Oakland 12, Calif.

Kaiser Aluminum

The nation's largest producer of triplex and aluminum weatherproof conductor

Here is a typical example of the big savings possible with Kaiser Aluminum Triplex

INSTALLED COSTS FOR 10 SERVICE DROPS (Average Length of 100 ft.)

	#6 Solid TBWP Copper	#4 Kaiser Aluminum Triplex (Oyster)
Cost of conductor	$135.15	$103.00
Cost of pole taps, entrance connectors, house wireholders	15.30	14.70
Total materials cost	$150.45	$117.70
Total labor cost	80.80*	49.30*
TOTAL COST	$231.25	$167.00

TOTAL SAVING—$64.25—PER 1000 FT.!

*Average labor costs based on reports from 10 utilities in various sections of the country that have switched from three open wire type service to Kaiser Aluminum Triplex.

"If you have a question on accessories, your local Kaiser Aluminum conductor engineer will be glad to advise you. Call him now."

AFTER 3 YEARS' SERVICE FROM
OVER 3,000 CAVALIER HEATERS
HERE IS A REPORT FROM MR. HART,
PRESIDENT, STONE RIVER HOMES, INC.

STONES RIVER HOMES, INC.
2417 WEST END AVENUE
NASHVILLE 5, TENNESSEE

12 August 1954

Mr. Melvin H. Wessel
Cavalier Corporation
Electric Heater Division
Chattanooga 2, Tennessee

Re: Stones River Homes
Sewart Air Force Base, Tennessee

Dear Mr. Wessel:

As Architect and President of the Corporation owning the subject project, the largest electrically heated housing development in the world, I wish to state that we are well pleased with the Cavalier electric heaters specified and used throughout.

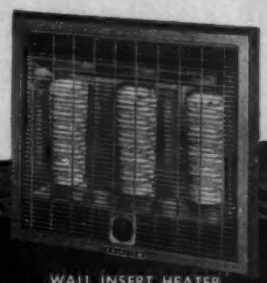
Considering that 3190 heaters were installed, we feel that our maintenance cost has been quite reasonable and that the tenant's heating costs have been favorable.

In event of an addition to the development, it is my intention to use Cavalier heaters.

Most sincerely yours,

STONES RIVER HOMES, INC.

Joseph W. Hart, President



WALL INSERT HEATER

Contractors—Cavalier heaters are easy to sell, easy to install, and do not require expensive call backs. Every Cavalier heater sale also means sale of wire, conduit, switches, etc.

Cavalier® Automatic ELECTRIC HEATERS

Wall Insert, Surface Mounted, Portable, Full Chrome Finish Wall Insert, and Non-automatic Bathroom Heaters, and Floor Furnaces.

Write for Catalog and Price List covering Cavalier's complete line, and Guide for Calculations of Electric Space Heating.

CAVALIER CORPORATION
Electric Heater Division
CHATTANOOGA 2, TENNESSEE

lite - 40 watt tandem and two lite - 75 watt with a choice of all metal or plastic sides panels. With either material it equals or exceeds the new standards.

Due to the special nature of the fixture design, reflector surfaces are kept unusually clean by the convection currents created by the lamps. According to the manufac-

turer, only two or three cleanings should be required in the normal life of the fixture.

All louvers are of spring steel thus eliminating the possibility of disfigurement in handling.

Louver assembly may be dropped from either side or either end or removed completely for relamping. A simple snap arrangement releases the louver.

The new MP-45 is adaptable to all types of mounting. Especially interesting is the recently developed "I"-Beam mounting bracket which permits mounting the fixture directly to the overhead I-Beams. Also new is a special duplex side clamp connector said to reduce mounting time in continuous runs by 20 to 30 per cent.

For additional data, circle item 1034 *on the coupon on page* 112.

Westinghouse adds M-H1 to mercury-vapor lamps

"DELUXE GOLDEN WHITE" is the latest color in mercury-vapor lamps to be developed by the Westinghouse Lamp Division, Bloomfield, N. J. The new 400-watt lamp is known as the type M-H1 and the company states that it will extend the application of mercury lighting into the commercial field.

The deluxe lamp uses the same inner phosphor coating as the present color-corrected lamp to complement the blue output of the mercury-vapor light, and a ceramic coating is baked on the outer bulb that filters out some of the green and yellow light. The resultant improved color quality of the light greatly enhances the appearance of the complexion and all colored objects.

The deluxe lamp uses a larger bulb than the standard 400-watt fluorescent-mercury lamp. For best results, fixtures such as those de-

veloped for the 1000-watt fluorescent-mercury lamp should be used. The lamp will operate with standard 400-watt ballasts.

For additional data, circle item 1035 *on the coupon on page* 112.

Killark designs new sealed beam fixture

A NEW "VERSATILE" sealed beam fixture has been designed by Killark Manufacturing Co., Vandeventer & Easton Avenues, St. Louis 13, Mo. These new weather-proof holders have been designed to meet the demand for a relatively narrow distribution of light from a compact source, together with flexibility of

aiming, easy maintenance of light output and minimum of cleaning.

The fixtures (Cat. No. SSNB) are completely wired at the factory, and all wiring is completely enclosed. Receptacle arrangement enables the lamp to be rotated for maximum efficiency. Protective lens with channeled rubber seal is fastened in the hinged ring by two clips. The entire holder is quickly adjusted to either vertical or horizontal positions, and easily locked in place.

The cooling fins not only help dissipate the heat rapidly, but add to the holders appearance. And, because of this low operating temperature, lamp life is increased.

Constructed of Killark's Alumalloy, the SSNB Series won't rust or corrode, won't rust-stain walls and is always new looking for years of trouble-free service.

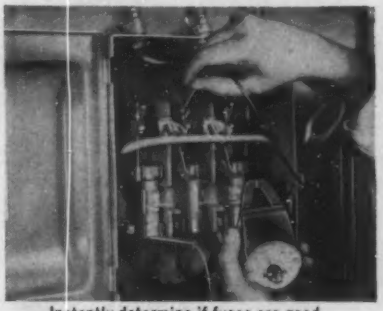
For additional data, circle item 1036 *on the coupon on page* 112.

P&S Alabax fixture features two lamps

A NEW TYPE FIXTURE that has an enclosing glass shade, inside of which there are two lamps, has been announced by the Alabax Division, Pass & Seymour, Inc., Solvay Sta-

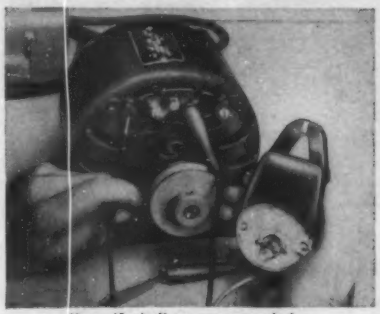
Check appliance current at receptacle

Trouble-shoot relays quickly



Instantly determine if fuses are good

Know if the load is balanced



Know if windings are grounded

Expand low-amp reading by doubling lead

Eliminate Guesswork!

NOW *EVERY* MAN CAN BE EQUIPPED WITH THIS POCKET VOLT-AMP TESTER

Here is a real improvement for the men on your crew who now use a voltage tester. It's the Amprobe Jr., a pocket tester that measures both voltage and current, with instrument accuracy, without shutting down equipment. And the cost is only $19.85 (just a few dollars more than an ordinary voltage tester), so every electrician and plant maintenance man can carry one.

Pick the Amprobe Jr. that fits the job. 7 models from 0-10 amp to 0-100 amp; choice of either 0-125/250 volts A-C or 0-150/600 volts A-C range. For higher current applications, multi-range Amprobes available for 300, 600 or 1200 amperes. See the full line of Amprobe snap-around volt-ammeters at your jobber's today. PYRAMID INSTRUMENT CORP., LYNBROOK, N.Y. *(Export Div.: 458 Broadway, N. Y. 14)*

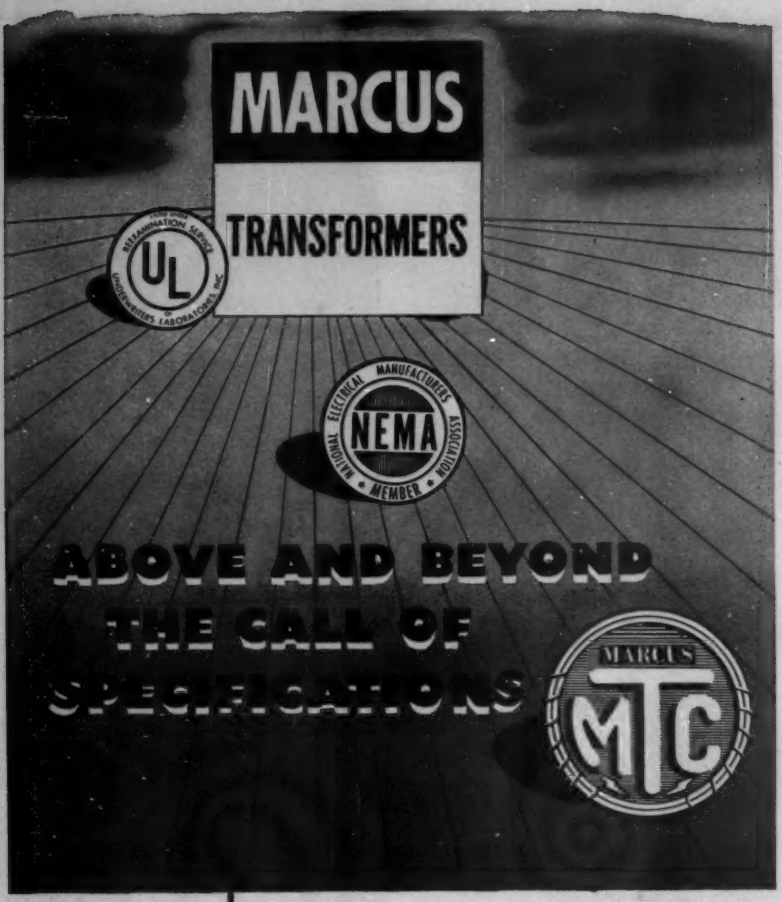
Amprobe Jr.®
snap-around volt-amp tester **$19.85**

Send for these free Amprobe service bulletins:

Pyramid Instrument Corp.
Dept. ES104, Lynbrook, N. Y.
Please send me the Amprobe service bulletins checked below:

- ☐ How to cut costs and land more jobs
- ☐ Trouble-shooting electric motors
- ☐ How to boost service profits
- ☐ Portable test instruments

NAME_____
COMPANY_____
ADDRESS_____
CITY_____ ZONE____ STATE_____



CHECK THESE MARCUS B "PLUS" FACTORS FIRST!

- Higher Dielectric Strength!
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Capacities from 1 to 3000 KVA

- DISTRIBUTION
- GENERAL PURPOSE
- UNIT SUBSTATION
- PHASE CHANGING
- ELECTRIC FURNACE
- RECTIFIER
- WELDING
- MOTOR STARTING
- SPECIAL

Every MARCUS Transformer, whatever its class and for whatever purpose, is engineered and constructed to far exceed its particular specification demands. Underwriters Laboratories, Nema and AIEE standards are only a starting point for our development engineers. The proof of performance is evidenced in thousands of installations all over the world because MARCUS Series "5000" class B "Plus" Transformers approach class H insulation but operate at Class B temperatures. That safety factor plus constant research are your assurance that the MTC Seal on your Transformers means longer life, and uninterrupted trouble-free performance.

"Mark of Quality"

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TRANSFORMER CO., INC.
RAHWAY, NEW JERSEY

Representatives in Principal Cities

tion, Syracuse 9, N. Y. One lamp can be 100 watts or smaller, for general illumination; the other lamp a small six watt night-light lamp. This small lamp will give a soft and pleasant glow through the enclosing shade, making an ideal light for night-light.

There is a two circuit pull switch, making it possible to operate either

lamp alone. The light from the night-light is sufficient to softly illuminate the room, and does not give any bright or glaring spots of light that are so often irritating at night.

This new combination fixture is ideal for the bathroom, nursey, or other locations where a night-light is desired. The identification is AL-2685 with convenience outlet, and AL-2686 with no outlet.

For additional data, circle item 1037 *on the coupon on page* 112.

Wakefield Omega-Plex available with louvers

ONE IN THE SERIES of the Wakefield Geometrics, manufactured by the F. W. Wakefield Brass Co., Vermilion, Ohio, Omega-Plex is a complete unit ready for on-surface

mounting. The ballasts and lampholders are in an individual metal housing that provides hook-on suspension points for the Wakefield Rigid-Arch Diffuser. This diffuser is molded with a sweeping arch, slightly higher in the center than at its edges, giving greatly improved rigidity. It has a non-specular, matt

finish which minimizes possible reflected glare from outside the building. Omega-Plex is also available with louvers.

Omega-Plex is mounted directly on existing ceiling, with no required structural changes. The unit may be used individually, or combined in an unlimited variety of lighting designs. Width dimensions are to the exact inch module, for precise coordination of various Omega-Plex sizes with other building materials.

Louvers and the Rigid-Arch Diffuser are metal framed for increased strength, swing down and lift out for maintenance.

Omega-Plex is available in two by two, two by four, one by four, and four by four foot sizes.

For additional data, circle item 1038 on the coupon on page 112.

Smithcraft introduces store lighting system

A NEW DEVELOPMENT in lighting for stores has been recently introduced by Smithcraft Lighting Division, Chelsea 50, Mass. Called the "Salesliter" and designed for slimline lamps, this unusually-functional lighting system gives the effect of

row after row of lamps without lampholders or conventional housings. In addition, Salesliter units may be laid out continuously so that long lines of eye-catching lighting are created. The resulting high-level brilliant illumination and extremely modern appearance attracts maximum attention and effectively directs store traffic.

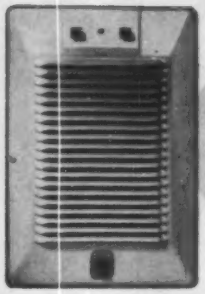
The Salesliter is exceptionally easy to clean and maintain because of its simplicity. Any electrical component is quickly and easily serviced without disturbing the installation itself. The over-all cost of the Salesliter is considerably lower than conventional fixtures, due not only to the low initial cost but the simple and money-saving installation procedure.

For additional data, circle item 1039 on the coupon on page 112.

Teal announces display for outdoor fixtures

A COLORFUL DISPLAY, which exhibits their new line of weatherproof garden lighting equipment,

THERMADOR
The Most Complete Line of
ELECTRIC HEATERS

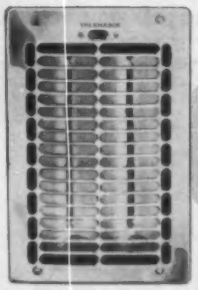


A MODEL FOR EVERY ROOM

LIVING ROOMS — Thermador Wall-type Heat-Fan (W). Room-by-room control . . . no wasted heat. Easily installed between wall studs. No costly flues or ducts. With or without thermostat. Rich Sun Bronze Enamel Finish (can be repainted to match surroundings). 2500 to 4500 watt capacities. 60 cycle, 230 volts.

FOR CONSUMER SATISFACTION

SMALL ROOMS — Thermador Wall Heat-Fan (B). Instant warmth in dens, nurseries, dinettes. New, low-wattage model is easily installed. Warms in winter — cools in summer. With indicator light, sturdy switches; in thermostat or manual control models. Rich Sun Bronze, White Enamel or handsome Stainless Steel Finish. 1650 watt capacity, 115 or 230 volts.



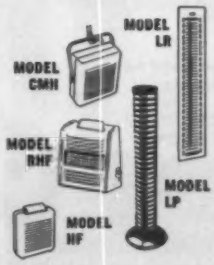
FOR QUICK DEALER PROFITS

BATHROOMS — Thermador Bathroom Heater (RB). Low-cost, instant radiant heat. Flick the switch and feel the warmth. Convenient top switch, lifetime stainless steel safety grill. Easy installation. Avoids costly flues or ducts. Safe and clean. Ideal for building or remodeling. 115 volts. 1000 to 1500 watt capacity.

BACKED BY POWERFUL ADVERTISING

CARRY WITH YOU — Thermador Master Heat-Fan (MHF) — wherever you need plenty of heat: office, factory, school or home. Quiet, high-speed fan for warmth during winter — circulated air in summer. In thermostat or manual controlled models with safety switch; dual-purpose switches. Sun Bronze Finish. 230 volts, 3000 to 4600 watt capacities.

THERMADOR famous makers of Built-in and Console Electric Ranges, Water Heaters, Coolers, Heaters, Plumbingware and Cookware.



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Division of Norris-Thermador Corporation
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Sockets positively cannot fall out with Magni Flood's new spring sockets — no matter what the conditions, no matter how much vibration is present! Available for Sealed Beam Par 38, R 30 and R 40 lamps. Further information on request . . . and be sure to write for our great Light's Diamond Jubilee catalogue.

MAGNI FLOOD *inc.*

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Remember . . . whatever you need . . . WE PUT IT IN LIGHTING!

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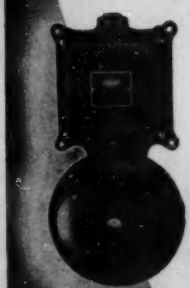

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VIBRATING HORNS

There's *order* in this plant—and in the many, many other factories and offices equipped with Faraday signals and systems. They stop confusion and save steps, paging and signaling clearly and faithfully, day-after-day, year-after-year.

For generations, Faraday engineers have designed bells, buzzers, horns, chimes and complete systems to meet an endless variety of signaling needs and sound level requirements.

Consult your electrical wholesaler for details on the complete Faraday line.

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CONSOLIDATED BY:

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BELLS · BUZZERS · HORNS · CHIMES · VISUAL AND AUDIBLE PAGING DEVICES AND SYSTEMS

has been announced by Teal Corp., 14 Cordier St., Irvington, N. J. Called the "Garden Lighting Center," the display shows suggested ways of illuminating gardens, patios, play, and outdoor living areas.

Teal garden lighting equipment is made for portable (spike and flange

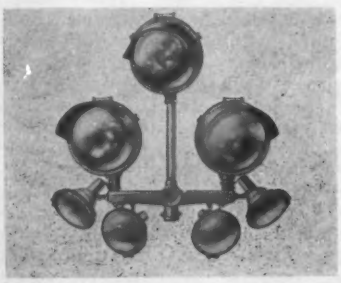
with weatherproof cord and plug) or permanent (conduit) installations. The equipment is rugged—made of cast aluminum with porcelain sockets and weatherproof gaskets. Units are finished in black krinkle and solid brass.

The Teal "Garden Lighting Center" was designed to stimulate sales for this new field of lighting, and to assist distributors and retail stores in merchandising this line.

For additional data, circle item 1040 *on the coupon on page* 112.

Crouse-Hinds introduces floodlights, arm bracket

DESIGNED as a one-pole assembly to serve a wide range of industrial and commercial applications, these three products—a bracket arm and two general purpose floodlights—have recently been introduced by Crouse-Hinds Co., Wolf and 7th



North Sts., Syracuse, N. Y. The Type GPT bracket arm supports three MDB-14 and four MDB-10 general purpose floodlights.

In order to simplify installation of a group of floodlights on one pole, the new cast aluminum cross arm slip-fits two-inch pipe. The top section will take two MDB-14 lighting fixtures. A center vertical 1½ inch

pipe may be added to accommodate a third. Its two end and two bottom hubs are tapped ½-inch for mounting four MDB-10 floodlights. The removable center plate has a terminal block attached, to which the wire lugs of the floodlight cables are fastened. Fixture installation is completed by merely setting the assembly on the pole and by attaching the incoming service leads to the terminal block.

Available in a wide selection of lenses to provide the exact beam spread required for different mounting locations, type MDB-14 floodlight has a one piece cast aluminum socket housing, and reflector, door frame and hood of sheet aluminum.

For additional data, circle item 1041 *on the coupon on page* 112.

New post lantern made of plastic

A MODERN PLASTIC adaptation of the picturesque colonial post lantern has been announced by Plymouth Industrial Products, Inc., Plymouth, Wis. This firm has successfully simulated a wrought iron masterpiece in a

new thermoplastic material (clevelon) that resembles wrought iron and can be painted as desired.

Made to a full eight-feet tall, the new post lantern is produced in four pieces which can be easily assembled, wired and set in place with a minimum of effort.

Besides its traditional beauty, the plastic lantern is said to be highly durable, rustproof, weatherproof and can be purchased at about one-third the cost of its original.

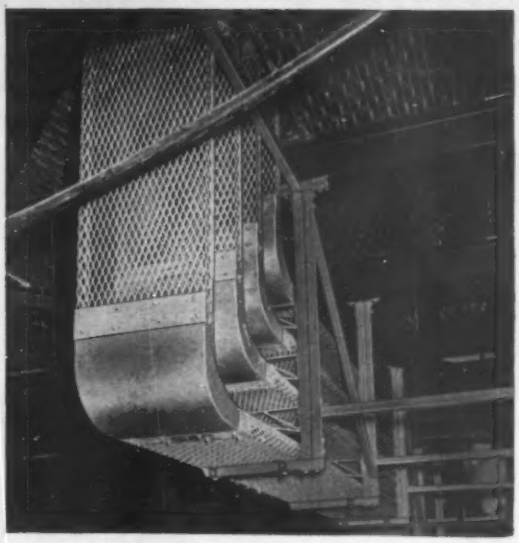
For additional data, circle item 1042 *on the coupon on page* 112.

Wheeler reflector lines feature interchangeability

YEARS OF IMPROVEMENTS are combined in the new construction developed by the Wheeler Reflector Co., 275 Congress St., Boston 10, Mass., for their Duratach and Solid Neck reflector lines. These versatile re-

Cope

CABLE TROUGH



Etiwanda Steam Station Southern Calif. Edison Co.

for efficient and continuous support of power and control cables

Cope Cable Trough is a completely designed, standard system of flattened expanded metal trough especially designed to give continuous support to power and control circuits. The system is light but strong and can be quickly and easily erected at the job site from completely prefabricated units.

A wide range of fittings such as tees, elbows, dropouts, etc. is available which allows changes of direction and elevation to be easily made.

Installation is extremely simple—the only tools needed are a few wrenches—and once in, the trough, being hot dip galvanized after fabrication, requires practically no maintenance but is accessible should cables ever need to be inspected or replaced.

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Jackson, Miss.—*Gregory-Salisbury & Co., 514 Court St.*
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October, 1954

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B1005	B1014	B1023	1032	1041	1050
B1006	B1015	B1024	1033	1042	1051
B1007	B1016	B1025	1034	1043	1052
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flectors offer modern, rugged construction, amazingly easy, low cost maintenance—plus complete flexibility on all installations.

The key to this flexibility is that all reflectors are common to both lines and are adapted to form complete Duratach or Solid Neck reflectors by a single component part assembly. The complete flexibility of the new lines is further illustrated by their three optional methods of hanging, consisting of basic pendant installation, with simple conversion to side outlet or outlet box.

Reflectors are available in a choice of five models, each designed to do a specific lighting job—RLM Standard Bowl, RLM 30° Angle Bowl, RLM Deep Bowl, Shallow Dome and Elliptical Angle.

For additional data, circle item 1043 *on the coupon above.*

Latrobe PRODUCTS
FLOOR BOXES • WIRING SPECIALTIES

Quickly Installed
Efficient in Operation

There is nothing complex or intricate about "Latrobe" Floor Boxes and Wiring Specialties. Their design and mechanism is kept simple and sure. That is why "Latrobe" products are so quick to install and so trouble-free in operation.

Floor Boxes • Cover Plates • Pipe or Conduit Hangers • Gang Boxes • Nozzles • Fish Wire • Cable Supports • Junction Boxes • Insulator Supports • Staples and Cable Clips

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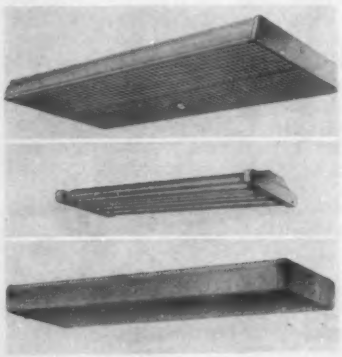
LATROBE . . . PENNSYLVANIA

Miller fixtures made 'for modern shopping'

A NEW GROUP of fluorescent lighting fixtures for stores, "Designed for Modern Shopping," is announced by the Miller Co., Meriden, Conn. These new fixtures constitute a simplified approach to the modern store lighting problem in that the needs of



nearly all types of stores are filled by three types of fixtures. Further simplification is obtained by making all three fixture types for use with only one type of fluorescent lamp,

the Rapid Start, which has the broadest application, and requires no separate starter.

Miller's new Storelites are styled to blend with interior architecture and decor, to enhance the eye appeal of merchandise, and yet be unobtrusive. They are engineered to provide efficient and comfortable illumination, ease of installation and low maintenance.

Styled as a group, these new fixtures give lighting a new slim dimension. The Merchant comes in two and four lamp, 48-inch size. Plastic side panels minimize side and bottom contrast: Choice of one-piece Diamond Lucite or one-piece injection molded plastic louver bottom enclosure; highly efficient, comfortable 43 degree - 43 degree shielding. The Suburban has a full one-piece plastic body with aluminum ends, is easy to clean, light, rigid and nonwarping; no sharp corners to accumulate dust. Comes in two and four lamp, 24 and 48-inch lengths. The Supermarketer is a bare lamp type, in two and four lamp, 48 and 96-inch lengths. All models in this group are made for surface or suspension mounting, individually or end to end in continuous rows. All models are individually packed.

For additional data, circle item 1044 *on the coupon on page* 112.

Moisture-proof fixtures introduced by Paulding

COMPLETELY MOISTURE-PROOF construction of two new lighting fixtures, recenty introduced by John L. Paulding, Inc., New Bedford, Mass., permits safe operation in showers, bathrooms, laundries, dairies, barns, garages, etc.

Danger of short circuits and shocks from water in units is prevented

by a special waterproof cement which seals wiring and sockets, and by two rubber gaskets, one between the fixture and wall or ceiling and the other between shade and fixture. Both have opal glass shades for even, general illumination, and one shade has a clear fresnel lens at the bottom to concentrate light directly below it.

The fixtures are of exceptionally high quality throughout. Features include 5⅝ inch diameter porcelain bases that fit either 3¼ inch or four-

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1 ft. through 5 ft. lengths

For Switches, Panel Boards or Straight Runs you can't match the flexibility, greater capacity and easy installation of B&C wireways. Die formed construction of heavy gauge sheet steel, as specified by the Underwriters Laboratories and the National Electrical Code.

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the oval-cover, flat-back Pylet

The new "OR" series Pylets with interchangeable features will meet all conduit fitting requirements for *machinery wiring... plant maintenance... and new construction.*

- Accurate, ferrous alloy castings.
- Tapered, machine cut threads.
- Large, flat back area, easily drilled for secure mounting.
- Roomy, smooth interior facilitates wire pulling.
- Well-rounded edges prevent wire damage.
- Self-retaining cover screws.

Sold only through authorized distributors.

Write for bulletin and names of distributors in your area.

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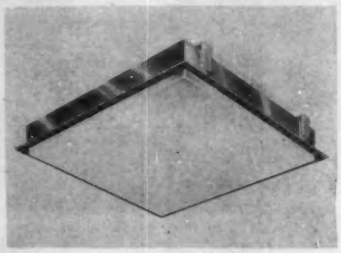
PLUGS AND RECEPTACLES • LIGHTING FIXTURES

inch box. Attachment straps are included. The fixture with lens in shade measures seven inches in over-all length; the other, 6½ inches. Both take bulbs up to 100 watts, are rated for 660 watts, 250 volts, and carry the UL label.

For additional data, circle item 1045 *on the coupon on page* 112.

Sunbeam fixtures designed for commercial interiors

A NEW SERIES of "large area" recessed fixtures of high intensity, low brightness illumination has been introduced by Sunbeam Lighting Co., 777 East 14th Place, Los Angeles 21, Calif. These fixtures, the Number HSDP3800 series, are four-foot square (nominal) recessed light cells designed for large commercial in-



teriors such as department stores, banks, lobbies and public buildings.

These units have translucent white Plexiglas diffusing panels which are specially effective in producing glareless, balanced illumination in high ceiling areas. Almost like a prefabricated ceiling cell, they are constructed of heavy gauge steel and incorporate many features for easy installation.

These recessed units are finished in high reflectance white enamel which, in conjunction with the high transmittance of the diffuser, results in generally higher luminaire efficiencies. The four-lamp units are easily installed by only two men.

Sunbeam's 3800 series is made for four, six or eight fluorescent or slimline lamps. They are also designed to take other diffusing elements for specific lighting purposes or to fit particular architectural needs.

For additional data, circle item 1046 *on the coupon on page* 112.

Holophane luminaire gives glare-free corridor light

A NEW LUMINAIRE for corridor area lighting has been announced by the Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y. Called the No. C-824 Corridor Lighting Luminaire, this unit has been engineered to provide glare-free lighting, so that corridor traffic areas will present the same high level, comfortable, safe illumination conditions now standard in major commercial and industrial interiors.

The No. C-824 unit achieves a "three-dimensional" control, redir-

ecting useful light in all directions —up to the ceiling and across to the walls, as well as down to the floor. By taking full advantage of the reflections from these surfaces, the unit provides balanced illumination with high visibility.

The prismatic glass refractor bowl, with its engineered design, makes possible these desirable lighting results.

For additional data, circle item 1047 *on the coupon on page* 112.

Prescolite adds indirect luminaire to fixture line

ANOTHER ADDITION to the ever expanding line of lighting fixtures manufactured by Prescolite Manufacturing Corp., 2229 Fourth St., Berkeley 10, Calif., is their new Indirect Luminaire.

This ring-type fixture is ideal for lighting schools, stores, hospitals,

and offices where high efficiency, uniform brightness and a minimum of maintenance is required.

The new Prescolite fixture is of sturdy construction (no spot welds), with all the ring edges rolled for added strength.

The fixture available in either pendent or ceiling type units for use with 300 to 500 watt silvered bowl incandescent lamps. Pendant units come with patented "hang-straight" assembly which allows a 52 degree latitude of swing for use

on slope ceilings.

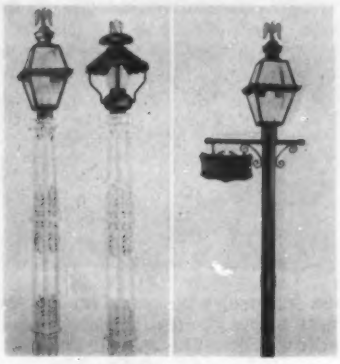
Standard finish of the Prescolite Indirect Luminaires is matte-gray.

For additional data, circle item 1048 on the coupon on page 112.

Hadco offers complete lantern and post line

A COMPLETE NEW LINE of all aluminum posts and cast aluminum lanterns has been introduced by Hadco Aluminum Products, 501 Pressley St., Pittsburgh 12, Pa.

This series of exterior lanterns and posts offers the customer decora-



tive, dignified, traditional and modern designs. They are styled with sign plaques, arrow ladder-rest assemblies and side-arm lantern mountings as well as many other distinctive features.

The entire new line consists of 12 post selections and seven attractive lantern models. All parts and units are finished in special exterior enamel in black or white.

For additional data, circle item 1049 on the coupon on page 112.

Sylvania fluorescent produces more light

A NEW FLUORESCENT LAMP, eight feet long, which produces more light than standard fluorescent types, was announced recently by Sylvania Electric Products, Inc., 1740 Broadway, New York 19, N. Y.

The new rapid-start high-lumen fluorescent lamp can produce light at the high efficiency of 70 lumens per watt, according to Sylvania engineers. In addition, its approximate initial brightness is 2,560-foot lamberts.

The lamp is of a standard cool white color, with other colors to follow. Its rated life on three-hour cycle is 7,500 hours.

Because of its relatively high loading (watts per square inch of bulb surface), the new lamp has been designed for and will work best in well ventilated fixtures, either of

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industrial or commercial types. It is not designed for fully enclosing fixtures, such as troffers. It should work well in many out-of-door applications, Sylvania engineers said.

Other technical data on the new lamp is as follows: nominal watts-100; operating current (amps)-.815; operating volts-140; bulb-T12; base-recessed double contact; approximate initial lumens-7,000.

For ballast designers, additional data is available in separate form, and sample lamps may be secured by applying to the Commercial Engineering Dept., Sylvania Electric Products Inc., Salem, Mass.

For additional data, circle item 1050 *on the coupon on page* 112.

Mitchell luminaire series offers attractive styling

HIGH - EFFICIENCY ILLUMINATION coupled with attractive styling is now available in ten ultra-thin, streamlined luminaires featured in the "Thinline" grouping of the "Milestone" series produced by the Commercial and Industrial Fluorescent Lighting division of the Mitchell Manufacturing Co., 2525 Clybourn Ave., Chicago, Ill.

Designed to provide glarefree abundant illumination, particularly useful in offices, stores, schools and institutions, the "Thinline" series offers ultra-shallow contour for attractive streamlined installation; "Evenglo" plastic sides and louver provide higher transmission of light,

yet feature tremendous hiding power and diffusion for lower surface brightness, and the louver has a desirable 45/45 degree cutoff so that the lamps are not visible from normal viewing angles.

All units have a one-piece die-formed 20-gauge steel body channel, finished in heat-resistant baked white enamel, and may be suspension mounted individually or in continuous rows.

Selections encompass eight four-foot and two eight-foot luminaires, in two or four lamps. There are four lamp types: T-12 medium bi-pin, T-12 medium bi-pin instant-start, T-12 rapid-start and T-12 Slimline.

All units, wired for line lead connections, can operate on 110-125 volts, 60 cycle a-c, and carry the Mitchell one-year guarantee.

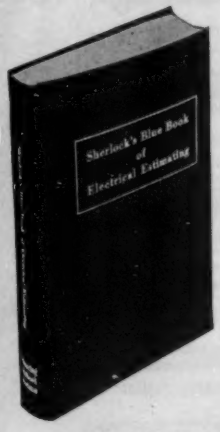
For additional data, circle item 1051 *on the coupon on page* 112.

Luminous Ceilings adds Diamond Jubilee series

IN CELEBRATION of the 75th anniversary of Edison's invention of the electric light bulb, Luminous Ceilings, Inc., 2500 W. North Ave., Chicago, Ill., have introduced the "Diamond Jubilee Series" of light fixtures.

The high lighting efficiency and compact streamline design of the

new fixture will complement the finest offices, banks, schools, stores, and corridors. The special unbreak-



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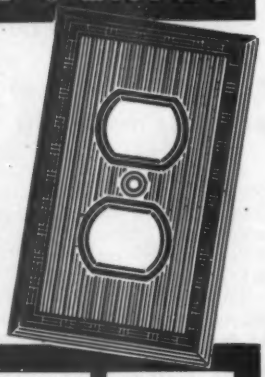

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able thin translucent corrugated "Lumi-Plastic" bottom and sides offer high light transmission with low surface brightness.

In addition to the important feature of producing an even light that is shadowless and glarefree, the Lumi-Plastic in the new fixture can be easily washed with any detergent. Also, all lamps and component parts are hidden from view. A special combination hinge and latch permits ease of cleaning and relamping by swinging down the "Lumi-Plastic" diffuser frame leaving both hands free to use.

The new fixture is now available in three widths, 16 inches, 28 inches and 40 inches. The respective fixtures use two, four, and six lamps. Lengths of the fixtures are 96⅛ inches, 72⅛ inches, and 48⅛ inches. Depth of all fixtures are 6¾ inches. These fixtures may be used individually or ganged end to end for continuous rows of light.

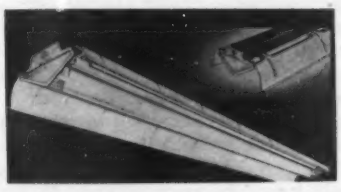
Instant Start Slimline lamps in choice of four, six, or eight foot lengths provide the illumination which is diffused by the featherweight corrugated "Lumi-Plastic" panels.

For additional data, circle item 1052 *on the coupon on page* 112.

Day-Brite CFI-25 aids worker visual comfort

DAY-BRITE LIGHTING, INC., 5411 Bulwer Ave., S. Louis 7, Mo., has announced a new fixture which they term "the greatest development yet" in the industrial lighting field. Called the Lifetime CFI-25, the new fixture is a handsome, snow-white porcelain enameled industrial fixture with 25 per cent uplighting.

The CFI-25 boasts eight-foot reflectors, which are furnished, afford-



ing easier straight alignment of continuous runs of fixtures. Every square inch of surface is finished in vitreous porcelain enamel, both on the inside and top surfaces of the reflector. Apertures are die-embossed and new ribbed construction reinforces lateral strength to prevent the reflector from spreading and getting out of alignment. A longitudinal "V" center louver provides 30 degree crosswise shielding and reinforces lengthwise rigidity.

The CFI-25 is listed and recommended with hinged louver assembly but is also available without

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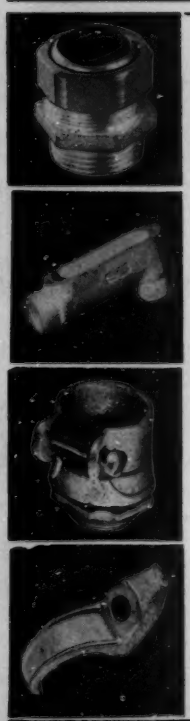

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it. Also available in the series is the CFI-10 with 10 per cent uplighting, which permits a choice of uplighting, depending on plant conditions.

For additional data, circle item 1053 on the coupon on page 112.

Certified lighting

(*Continued from page 23*)

was less than five footcandles.

A study of the results showed that the contractor was the most important segment of the industry in selling the remodernization job. In an effort to find the solution, the Industrial and Commercial Lighting Equipment Section of NEMA sponsored a training and promotion program in that city. The program was put on through the collaboration of the electrical league, distributors, contractors, manufacturers and the utility. Use was made of whatever training and promotional material and ideas that happened to be at hand. Yet, as a result, during the ensuing year, fixture sales for that area rose 30 per cent, even though fixture sales were declining nationally at the same time.

Early this year, a questionnaire was sent to the contractors in that test city asking them if they liked the program they had had and if they would like more of it. The unanimous answer was "yes."

NEMA committee work

Against the backdrop of the original study and the original trial promotion program in the test city, the Industrial and Commercial Lighting Equipment Section of NEMA set up a committee to develop plans for promoting sales in this field. During committee meetings and NEMA staff operations that have spanned more than two years, a carefully developed program has been formulated. An agency—the National Lighting Bureau—has been set up to execute the details of the program.

There are four major portions of the Industrial and Commercial Relighting Program.

1. Certification of plans for industrial and commercial installations which meet established industry standards.

2. Sales training of contractors, jobber-salesmen and utility-salesmen responsible for selling industrial and commercial installations.

3. Training in the design and laying-out of installations to meet certification standards.

4. Promotion of certified lighting to arouse consumer interest and demand.

Role of local groups

The program will operate through local lighting bureaus, set up under the sponsorship of local utilities, electrical leagues or lighting industry committees drawn together for that special purpose.

The training programs have been prepared with the intent that they will inspire and qualify an electrical contractor to sell more and better lighting and relighting jobs that will meet industry lighting standards and practices. The knowledge gained will encourage him to sell upward and will strengthen him to resist pressures to lower the quality and cost of the job he proposes to install. It is an integrated program to encourage more selling and to give the contractor the means to close more sales.

Promotion activities—both national and local—will be designed to aid the selling efforts of the contractor. Newspaper advertising mats and copy will be prepared for use by local groups.

Advertising and publicity support in national business magazines will be furnished by the National Lighting Bureau. Booklets designed for each major type of consumer, mailing pieces and other promotional material will be made available for the contractor and for the local committee.

Value to contractor

A contractor, having been inspired, trained and equipped by the local activities of the industrial and commercial relighting program is ready to go out and develope more lighting business for himself. The sales training program will have given him the opportunity to improve his selling technique. The technical education program will have shown him how to lay out a lighting plan that will provide illumination equal to industry standards. The certification program will give him a strong sales tool and customer-confidence builder. And the local and national promotion programs will support his efforts to find and develope business.

All in all, it's an up-grading, up-selling program that can be expected to boost customer appreciation of good lighting. And for the electrical industry, properly applied, that means Sales.

Give to your Community Chest

Lighting trends

(*Continued from page* 68)

and new church buildings in Louisville. While church lighting is not too great a revenue producing load, it does present some interesting lighting problems. Downlights, indirect lighting, or a combination of the two have been used, with decorative chandeliers supplying the architectural motif.

Several Louisville electrical jobbers now employ lighting specialists, and some electrical contractors in the area put quite a lot of effort into lighting sales. They are doing a very satisfactory job.

It has been the experience of the power company that a series of direct mail pieces with return postcards, when sent to the various groups of prospective customers, is still the best way of securing lighting prospects.

Maintenance safety

(*Continued from page* 30)

the problem, but it was still necessary to apply the wax every three months. Over a year and one-half ago, we replaced the wood gibs of two elevators with three-piece nylon plastic gibs. These cars have each run over 7,500 miles with significant savings that have attracted elevator manufacturers to the testing and study of this material.

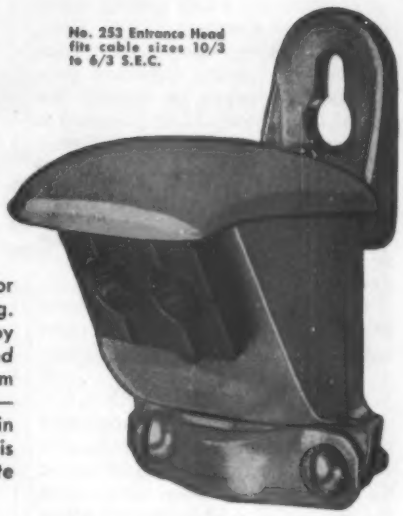
Even though these cars run on a perfectly dry guide rail, tests prove there is no increase in power consumption or appreciable wear on either nylon gibs or rails. When wear does occur, it will not be necessary to replace the entire gib as we did with one made of cast iron. We expect to use fiber shims in back of the nylon to take up the play. Only the worn sections will eventually be replaced.

Twenty - three passenger and three freight elevators in the two buildings are now equipped with nylon. Our cleaning schedule has been extended from one to two years and then only to remove the dust.

Safety device added

We have added a safety device to our voltage testers. Cases of fiber tubing enclose the prods, held

NEW LOW COST SERVICE ENTRANCE HEAD



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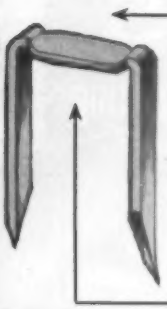

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in position by a coil spring inside each. When a voltage test is made, the protecting cases slide back against the spring pressure permitting the prods to contact the metal conductor. After pressure is released, the cases immediately slide into place, covering the metal prod completely. There is no chance for a short circuit with its consequent interruption of service or an arc flash in an electrician's eyes.

Our voltage testers now come through from the manufacturer equipped with this safety device.

Portable control box

Until recently it was necessary to have an operator inside the elevator to operate the car as directed by the mechanic, when working on the car top. A portable control box that can be plugged in a special outlet on the top of any car now enables the mechanic to do his own operating, at either high or low speed. This improved method gives a safer operation because it avoids the possibility of the mechanic's instructions being misunderstood, and it also eliminates the operator's time on the job.

Our clear plastic guards over elevator cables on the hoist motor units always interest visitors. They make it possible to see the top and bottom floor cable markings, keep the tile floor clear of greasy dirt thrown off by the cables, and afford protection against accidental contact by personnel.

We have presented here a few of the safety, time-saving and labor saving devices and procedures we employ, but our gains would be without note if we did not put safety above everything else. Our maintenance employees are trained to work safely and, in carrying out their jobs, are required to wear safety shoes, safety glasses and safety gloves. These precautions contribute to better employee relations and esprit de corps, and result in greater efficiency in our maintenance work.

"My interesting job"

(*Continued from page* 32)

1. The television areas, with a friendlier, cleaner, and more comfortable atmosphere, reflect good taste and customers' appreciation.

2. A utilization of the present wiring capacity was in the owner's favor.

3. Operating 18 hours a day, 7 days a week, a pleasing maintenance program was brought about by the new equipment introducing longer lamp life.

4. The initial cost of the installation was well in proportion with the average volume of business.

The owner, Mr. Frank Gordy, is indeed a proud and satisfied customer.

Houston's library

(*Continued from page* 25)

main public areas of the central library. This study indicated a great deficiency in illumination for reading, studying of card indices, as well as lack of lighting in the book stacks. A request was then made for recommendations for improving the seeing conditions.

Plans and specifications were prepared by the Public Service Department, who also received bids for doing this work. The proposed plans called for rewiring of the entire building due to the in-

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adequacy of the former wiring system to carry the proposed lighting load. The engineering firm of Hollis T. Bible was authorized to prepare detailed working plans and specifications for obtaining bids from contractors in order to let this job to the successful bidder. The Jim Copeland Electric Company did a very fine job in relighting and rewiring the building with the minimum amount of interference to the operation of the library.

There were two main problems that required a great amount of study and discussion with the personnel of the library. The first problem was to determine whether the new lighting system should be designed on a basis of incandescent with fixtures in keeping with the architecture, or whether the new system should be based on modern fluorescent with properly chosen fixtures and mounting height such that the overall system should be as inconspicuous as possible.

Coupled with this study was problem number two which was the elimination of any conduits for branch circuits or feeders in the public areas which might be required for the rewiring of this building. The study showed that if an incandescent lighting system were to be installed the number of branch circuits and feeder sizes would have to be tripled and the architecture would possibly be marred more by the exposure of conduit and wiring than if a fluorescent system not strictly in keeping with the architecture were installed.

It was interesting to note the difference in size between the old panelboards with a tumbler switch and plug fuse for each circuit as compared to the modern multi-breaker type of panelboard. Most of the lighting panelboards had door covers that were four by six feet in size with a six inch depth.

The final plans as drawn by Mr. Bible called for the removal of the inside workings of the old panelboards. Inside the remaining housing was placed a forty-two circuit multi-breaker panelboard, which in turn was covered by a steel plate over the entire four by six foot opening. A hinged door gives access only to the panelboard breaker sections.

The old lighting system throughout the library gave an intensity from two to twelve footcandles. The public reading rooms averaged six to ten footcandles. The new installation of continuous rows of four lamp, ninety-six inch slimline fixtures gives an intensity of thirty-five to fifty-five footcandles of even illumination. All areas that were relighted meet the standard in footcandle values set forth in the Handbook of the Illuminating Engineering Society.

The monumental design of the exterior was also included in the lighting plan and floodlights were set behind the low hedges to illuminate the building front, thus continuing to make its beauty readily visible after sundown.

Realizing that Houston is one of the fastest growing cities in the United States and in order to supply the needs of the public, it was necessary to modernize the library and lay plans for further improvements and expanded facilities. Next on the program is to air condition the entire building. Refinishing of the interior to lighter colors, in order to improve the over-all appearance and increase the efficiency of the lighting system, is also planned.

Effective promotion

(*Continued from page* 27)

ing. In Pinellas County, Florida, where company headquarters are located, the features of classroom lighting are as follows:

With a classroom width of 24 feet, three continuous rows of slimline fluorescent fixtures are used. These are low-brightness louvered fixtures utilizing 45 degree by 45 degree anodized aluminum louvers with approximately equal quantities of light upward and downward. Average illumination is in the order of 45 footcandles.

The three rows of fixtures are parallel with the windows and are on separate switches at the entrance to the classroom so that the lighting may be controlled with respect to daylight conditions. Supporting this splendid artificial lighting system are ideal color conditions throughout the classroom, including the ceiling, walls, floors, chalk boards, desks and all furnishings. Brightness balance is all that could possibly be desired for maximum visual comfort.

Specific requirements

In certain areas of the schools involving special considerations, other types of lighting, appropriate to the needs, are used. In the drafting room, for example, four-lamp slimline luminous indirect fixtures with low-brightness plas-

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tic diffuser reflectors are installed, and provide an average intensity of 100 footcandles on the tops of the drawing tables. All other features for visual comfort, as have been provided in the classrooms, are likewise provided in the drawing rooms.

In the Industrial Arts Department, both in the woodworking and machine shops, a "grid system" of fluorescent industrial fixtures of the latest type provide 150 footcandles of the most comfortable type of lighting, with a complete absence of shadows. All conditions in the room contribute to the visual comfort of students and teachers. Work can be carried on speedily and safely because of the high intensity, balanced brightness conditions. The slotted reflectors and white exterior finish of the industrial fixtures, together with the deep shielding of the reflectors make for a very satisfactory installation for areas of this type.

In the gymnasium, 50 footcandles of illumination are provided over the entire floor area, 108 feet by 112 feet with 1,000-watt mirrored glass reflectors spaced on 16 by 17-foot centers. Inspection reveals two additional projectors at each end of the gym which are directed to the basketball backboards. This increases the intensity on these focal points for tournament play. The reflectors are approximately 25 feet above the floor. Players and spectators alike have commented on the comfort in playing and following basketball and other games.

Versatility stressed

Auditoriums of the new high schools have been given individual attention just like all of the other special areas of the schools. Average ceiling height of the 98 by 101-foot room is 24 feet six inches. Incandescent "Skylike" fixtures in pairs, equipped with 500-watt silvered bowl lamps, spaced on 16 by 19-foot centers, provide 25 footcandles of very comfortable illumination. Half intensity is obtained by switching off one of each pair of lamps in the fixtures. Actually, the auditorium could be used, at least from a lighting standpoint, for study room purposes. Stage lighting is up to the same high standards as the auditorium lighting. Console type dimmer boards provide a wide degree of control in the lighting facilities which are made up of three assemblies of border lights and one row of footlights. Supplementary reflectors are available to give a wide variety of intensities and effects.

In the field of office lighting, the recently completed installation for Wyman Willingham Insurance Agency is typical of the trend.

Use of troffers

In the lobby section of the Willingham building, 30 footcandles of glare-free illumination are provided by four "Skylike" recessed incandescent fixtures on eight-foot by 7½-foot centers, each equipped with a 200-watt silvered bowl lamp. When a customer enters this office he is immediately impressed with the comfort and homey atmosphere provided by the greenery, the attractive decoration, and the comfortable visual environment.

Beginning at the front counter of the insurance office, the lighting system changes to an efficient fluorescent troffer system with the fixtures installed on 7½-foot centers and equipped with a diffusing medium of Albalite glass in hinged doors. The average intensity in the work end of the office is 63 footcandles.

The owner's office boasts 180 footcandles, so controlled that several intensities may be obtained, provided with Day-Brite recessed "Mobilex" fixtures arranged in a rectangular pattern. This high intensity of comfortable lighting makes it possible for the owner to study the multitude of figures which are involved in a business of this type with no visual discomfort.

How contractors sell

(*Continued from page* 20)

450,000 stores need from four to six times as much light as what they now have. Light is a primary factor in modern retail merchandising. That is why most merchants, in their modernization or new building plans, give first place to lighting, realizing that seeing is the biggest thing in selling.

The modern concept of store lighting is to apply it to perform specific merchandising functions. Light is used to render form, pattern, and texture, to merchandise, to differentiate departments, to command attention, to guide circulation, and to provide specific settings for displays. Lighting planned for such specific purposes has many times been shown to be responsible for greatly increased sales.

Cinching the sale

So remember how the merchant uses light and pitch your sales story accordingly. Then use your deluxe comparator to show and tell him your footcandle story, the improved color of deluxe lamps, and your exposed versus shielded fixture story.

These then are the larger fields from which the aggressive, electrical contractor can develop profitable, contract jobs. Remember that your basic problem is this one. You need to show your prospective customer that he needs better lighting; that better lighting will be profitable for him; and that you are qualified to modernize his establishment. Initiate your own contract jobs because they are your bread and butter.

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Manufacturer of steel expanding anchors, steel plate anchors, cone anchors, and malleable anchors is interested in representation by established manufacturers' representative selling pole line equipment to utility companies. Address inquiries to ELECTRICAL SOUTH, Box 705, 806 Peachtree St., N. E., Atlanta 5, Georgia.

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Nationally known manufacturer of electrical specialty widely used by public utilities, industrial plants, electrical contractors and electrical manufacturers, seeks sales engineer experienced in working with utilities and electrical wholesalers in Alabama and Eastern Tennessee, with headquarters preferably in Birmingham. Would be sole factory representative in territory, initially. Salary—with bonus possibility. Your detailed reply to Box 704 will be held in strictest confidence.

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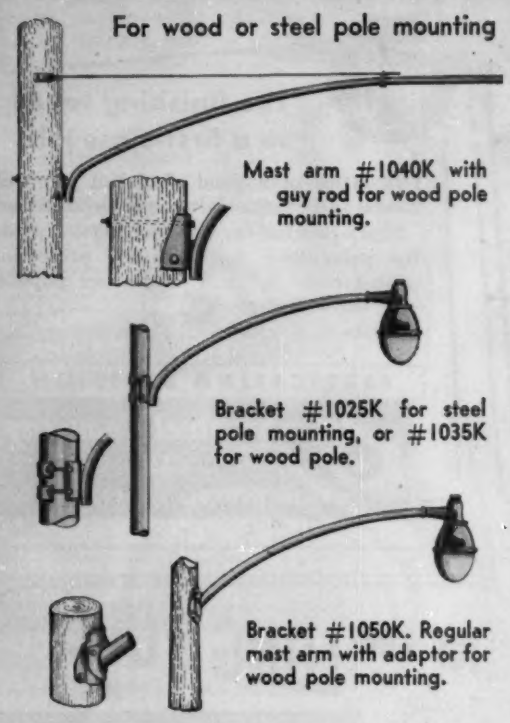

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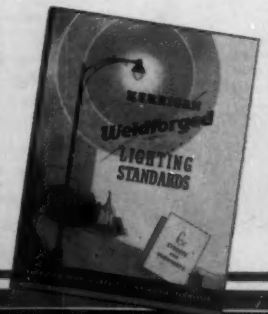

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